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NUMBER IN KIOWA: NOUNS, DEMONSTRATIVES, AND ADJECTIVES

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0. Kiowa has a complex system of number contrasts, in which the suffix {gɔ} marks plural in some nouns, singular in others, singular and plural in a few others, and is absent in still others. Verbs and certain other classes show contrasts in number that are partially correlated with those in the nouns; thus an analysis of the number system is relevant to the treatment of much of Kiowa grammatical structure.

In our treatment[1] of Kiowa, we assign to each class of noun stems an implicit[2] meaning or category of number different from that of the other classes, and handle the apparently different meanings of {gɔ} by stating that this suffix marks the logical negative of the implicit number; i.e. it changes the implicit number to whichever of the categories is not implicit in the stem. The implicit meaning is termed BASIC number, the changed meaning INVERSE number.[3] The basic-inverse contrast is found to be a primary contrast in the system; the actual categories involving singular, dual, and plural are resultant categories issuing from the basic-inverse contrast superimposed upon a number category implicit in the noun stem.

Another primary contrast appears in certain adjectives; members of related stem pairs that correspond in lexical meaning each mark an additional and constant number category termed ADJECTIVAL number. This number, in certain sequences of noun plus adjective, redundantly marks the same number found in the noun; in other such sequences, it renders unambiguous certain number categories that are ambiguously present in the noun.

Kiowa word classes include nouns, demon-

[1] The present paper is based on materials collected by staff and students of the advanced course of the Summer Institute of Linguistics at the University of Oklahoma, in which Kiowa has provided much of the laboratory material during the summers of 1950–53. Although the authors have developed the present form of the analysis and checked the data, many others, both staff and students, have contributed to it through informant work, discussion, and preliminary write-ups. Special acknowledgment is due to Sarah Gudschinsky, Mildred Larson, Gordon F. Larsen, and Robert C. Stone for collection and preliminary organization of some of the materials, and to Myron Bromley for work with us on the analysis and organization. Informants who have worked regularly in connection with the course during recent summers are from Kiowa, Comanche, and Caddo counties in Oklahoma; they are Alma Ahote, Lucy Goins, Lillian Hunt, Myrtle Paudlety, Mabel Quoetone, Mr. and Mrs. Charles Redbird, Mr.† and Mrs. Frank Satepauhoodle, Helen Spotted Horse, and Mr. and Mrs. Louis Toyebo. Mr. Toyebo provided much of the paradigmatic material, and most of the data here presented has been checked with him. In the case of a few dialectal and idiolectal differences, his materials are used unless otherwise stated.

[2] For another discussion of implicit categories see Herman Aschmann and William L. Wonderly, Affixes and Implicit Categories in Totonac Verb Inflection, IJAL 18.130–45 (1952).

[3] The term 'inverse', suggested to us in conversation with Max Zorn, is used in partial analogy with the use of the term in mathematics, where it contrasts with 'direct'.

stratives, and adjectives, besides verbs and other classes not treated in this paper. Verbs are characterized by prefixes marking subject or subject-object; they may also contain suffixes marking features of tense-aspect. Nouns may occur in subject or object positions relative to verbs; most noun stems may also occur with the suffix {gɔ} marking inverse number. Demonstratives may occur in attributive position preceding nouns; they contain suffixes marking basic or inverse number in agreement with the number of the noun. Adjectives may modify a noun or may occur in certain sequences with verb prefixes; certain adjectives present the special number contrast defined above as adjectival number.

Certain features of Kiowa phonemic analysis are still tentative; we write the following phonemes: voiceless unaspirated stops p, t, k; voiceless aspirated stops p^h, t^h, k^h; glottalized stops p', t', k'; voiced stops b, d, g; affricates c, c'; sibilants s, z; glottal continuant h; nasals m, n; lateral l; semivowel y; vowels i, e [e, e^i, ɛ, æ], a [a, ɑ, ə], ɔ, o [o, o^u], u. Vowels are marked for phonemic nasalization by /˛/. They are marked for phonemic length by /·/ (word medial short vowels are longer than word final short vowels; phonemically long vowels are correspondingly lengthened in their respective positions). Features of stress and pitch have not been fully analyzed; there is a phonemic contrast which we describe tentatively as stress and symbolize by /ˊ/, with the statement that in a contour containing more than one stress, each stressed syllable has a lower pitch than the last preceding stressed syllable within the contour. Glottal stop ʔ appears in our transcription; its precise phonemic status is problematical, but in at least some environments its occurrence is non-predictable; in some of these environments (e.g. before a stop) it appears to mark a neutralization of certain of the stop phonemes.

1. Kiowa noun stems are divided into four main classes, designated I, II, III, IV. These are defineable on the basis of the number categories marked in each class. Categories marked unambiguously (but not unambiguously in all nouns) are SINGULAR, DUAL, and PLURAL; categories marked ambiguously are DUAL/SINGULAR, DUAL/PLURAL, SINGULAR/PLURAL, and DUAL/-SINGULAR/PLURAL (the symbol [/] may be read 'is ambiguous with').

The ambiguous categories might alternatively be labelled non-plural, non-singular, non-dual, and indeterminate; however, because each of these is unambiguous at certain points in the noun structure (and also in the verb prefixes), we list them in terms of the positive categories with their ambiguities. Dual is always included in the basic number of the noun; it is therefore written first in labelling the ambiguous categories that include it.

Of the noun classes, I and II are by far the most frequent; they are treated in this section and in **4.** Most noun stems of classes I and II may appear both with and without a number suffix {gɔ} (those that do not appear with {gɔ} share other features of these classes; see **4.2** and **5**).

When class I noun stems appear without a number suffix, the number is dual/singular. When they appear with the suffix {gɔ}, the sequence of stem plus suffix is plural (three or more): cenbó· *cow(s)* (du./sg.); cenbó·gɔ *cows* (pl.).

When class II stems appear without a number suffix, the number is dual/plural; when they appear with {gɔ} the sequence is singular: ɔ́lp^{h}ą· *ribbons* (du./pl.); ɔ́lp^{h}ą·gɔ *ribbon* (sg.).

From the above data, class I stems are described as containing an implicit meaning of dual/singular; this is designated the BASIC (abbreviated bsc.) number of the class I stem. Similarly, the basic number of class II stems is dual/plural (for this reason, class II stems are assigned a gloss in the English plural form). (Note that

dual, unambiguous in verb prefixes and in class III nouns, is ambiguously present in class I and II nouns; in both classes I and II it is included in the basic number of the noun.)

The suffix {gɔ} is then described as marking INVERSE (abbreviated inv.) number; i.e. it inverts the basic number to the categories not implicit in the stem. Thus it changes the dual/singular of class I nouns to plural, and the dual/plural basic number of class II to singular.

Classes I and II correspond for the most part to a semantic classification of ANIMATE and INANIMATE respectively. The semantic contrast is correlated with a distributional feature: most class I nouns (animate) may appear as subject or object of transitive verbs; class II (inanimate) appear in our data as object only (efforts to elicit them as subjects of transitive verbs have not been successful).

Allomorphs of {gɔ} are -gɔ ~ (-dɔ ~ -bɔ) ~ -tɔ ~ -op ~ -oy ~ -bɔt ~ -gɔt ~ -gu ~ -mǫ ~ -ymǫ; each of these occurs with a specific list of noun stems. Their occurrence shows no apparent correlation with classes I, II, and III, although not all allomorphs have been observed in any one class. -op alternates with -oy with certain stems without apparent difference in meaning. Of the allomorphs (-dɔ ~ -bɔ), -bɔ occurs after stems ending in m, -dɔ after stems ending in n (and after other stems where its occurrence is not predictable in phonemic terms).[4]

Morphophonemic results obtained when the suffix {gɔ} follows a noun stem may be briefly summarized. Before consonant-initial suffix allomorphs, stem final V, Vy, (Vn, Vm) > V·, V·y, V̨·. Before vowel-initial allomorphs -op and -oy, stem final i or yi > y; stem final e or o is lost. When two stem allomorphs of a noun are listed, the second occurs with {gɔ}.

Class I noun stems, grouped by the allomorphs of {gɔ} which may follow them, are now shown.

Examples with -gɔ: cenbó· *cow*, tą́ *star*, cę́ *horse*, t'elbǫ́ *knee*, dɔ·k'í *god*.

With (-dɔ ~ -bɔ): cégun *dog*, tʰén *heart*, tędán *chicken hawk*, tógul ~ tógu·- *young man*, pól ~ pó·- *bug*, kóm *friend*, ɔ·kɔsɔ́m *mirror*.

With -tɔ: tái ~ tá?- *skunk*, kól ~ kó·- *buffalo*, ɔntʰál ~ ɔntʰá·- *toe*, dɔmtʰál ~ dɔmtʰá?- *toad*.

With -op: bá?oce·yo *cat*, k'yą́hį́· *man*, mą·yį *woman*, p'i *sister*, t'ǫ·de?í· *mouse*, k'ósényí· *safety-pin*, są·nę́ *snake*, ɔlhą́·ymę *mosquito*, polkʰí·de *worm*, zontʰá·pe *squirrel*, kʰɔ·lék'ye·lé *frog*.

With -oy: pʰó *louse*, kú·tohį· *eagle*, ká·bol?í *goat*.

With -gu: yókóy *young woman*, kʰóy *hide (leather)*, páy *clock*.

With -mǫ: ít'ąy *egg*, gyét'ąy *timber wolf*.

With -ymǫ: k'ítę́mą *married woman*, mǫ·tómą *widow*.

Class II noun stems are next shown.

With -gɔ: ólpʰą· *ribbons*, ayp'í?e *potatoes*, palhá· *bows*, áydę *leaves*, tʰǫ́·se· *bones*.

With (-dɔ ~ -bɔ): á· *trees, sticks*, kút'á· *pencils*, k'ón *tomatoes*.

With -tɔ: sól ~ só·- *onions*, é·tʰal ~ é·tʰa?- *corn*, k'ɔ?ál ~ (k'ɔ?á?- ~ k'ɔ?á·-)[5] *dishes*.

With -op: tʰá·de *matches*, mónsó·de *bracelets*, pʰɔ?á·té *balls*.

With -oy: ɔnsó *feet*.

With -mǫ: mǫc'ą́y *papers*, t'ą́y *sheets*.

2. Class III is a small group of noun stems which may appear both with and without {gɔ}. When they appear without the suffix, the number is dual. When they appear with {gɔ}, the sequence of stem

[4] A suffix -bɔ which alternates with -gɔ after certain stems, and with -gɔt and -dɔ after at least one stem each, appears to mark certain nuances of meaning in addition to that of inverse number. It is possibly assignable to a separate morpheme {bɔ} homophonous with the -bɔ allomorph of {gɔ}; if so, {gɔ} and {bɔ} form a class of two suffix morphemes both of which mark inverse number.

[5] In forms with {gɔ}, the allomorphs k'o?á?- ~ k'o?á·- may both occur.

plus suffix marks singular/plural: álɔ· *apples* (du.), álɔ·gɔ *apple(s)* (sg./pl.).

The basic number of class III noun stems is dual; stems of class III, like those of class II, are assigned a gloss in the English plural form. Their inverse number, marked by {gɔ}, is singular/plural.

All of the class III stems in our data, grouped by their allomorphs of {gɔ}, are now listed.

With -gɔ: álɔ· *apples*, álɔ·guʔk'ó *lemons* or *oranges*, álɔ·sɔhyé *plums*, t'áp'alɔ·gɔ *wild cherries*, sanéʔe *blackberries*, tʰǫ́t'olǫ· *oranges*.

With -dɔ: ól ~ ó·- *hairs*.

3. Demonstratives, based on stems ę́·- *near* and óy-[6] *remote*, form a convenient frame by which to identify the basic or inverse number of any noun. We therefore introduce these before proceeding to other sections on nouns.

When the demonstratives precede a noun of class I, II, or III in its basic number form (regardless of its actual number), the demonstrative forms are ę́·de *this* or *these*, óyde *that* or *those*; when they precede such a noun in its inverse number form, the demonstrative forms are ę́·gɔ *this* or *these*, óygɔ *that* or *those*. The suffix -de is analyzed as a morpheme {de} marking basic number; examples are shown with a noun of each of the three classes: ę́·de cenbó· *this cow, these cows* (du./sg.), óyde cenbó· *that cow, those cows* (du./sg.); ę́·de ólpʰą· *these ribbons* (du./pl.), óyde ólpʰą· *those ribbons* (du./pl.); ę́·de álɔ· *these apples* (du.), óyde álɔ· *those apples* (du.).

The suffix -gɔ in demonstratives is analyzed as the same morpheme {gɔ}[7] that marks inverse number in nouns; examples are shown with a noun of each class: ę́·gɔ cenbó·gɔ *these cows* (pl.), óygɔ cenbó·gɔ *those cows* (pl.); ę́·gɔ ólpʰą·gɔ *this ribbon* (sg.), óygɔ ólpʰą·gɔ *that ribbon* (sg.); ę́·gɔ álɔ·gɔ *this apple, these apples* (sg./pl.), óygɔ álɔ·gɔ *that apple, those apples* (sg./pl.).

From the data just given, demonstrative stems ę́·- and óy- are described as implicitly indeterminate as to number; they are marked for basic or inverse number by {de} or {gɔ} in agreement with the basic or inverse number of the noun form.

We use this phenomenon of agreement as a criterion in identifying a given noun form as basic or inverse when its form is not overtly marked as such or when its number suffix is not readily identifiable with {de} or {gɔ} on the basis of its phonemic shape; this becomes useful in **4** and **5**. (The pattern of agreement in verb prefixes corroborates this criterion and is often found convenient as another frame by which to identify the basic or inverse number of a noun; these phenomena are not included in the present paper.)

4.1. A few class I and II noun stems are bound; they appear either with the suffix {de} (basic number) or {gɔ} (inverse number). These pattern like the other class I and II stems except that their basic number form is overtly marked.[8] Certain of these stems are dual/singular when marked for basic number and plural when marked for inverse number; these are therefore assigned to class I (the dual/-

[6] The stem óy- appears as úy- in certain idiolects; in certain others, the forms óy- and úy- fluctuate.

[7] Demonstrative stems ę́·- and óy- may also appear with a locative suffix -gɔ which is homophonous with the inverse morpheme {gɔ} but morphemically distinct from it. The locative suffix does not indicate basic or inverse number agreement with the noun. Examples are with a class I noun: ę́·gɔ cenbó· *here is a cow, here are the cows* (du.); ę́·gɔ cenbó·gɔ *here are the cows* (pl.); óygɔ cenbó· *there is a cow, there are the cows* (du.); óygɔ cenbó·gɔ *there are the cows* (pl.).

[8] An alternative analysis would set up the nouns that have no overt marker as having a zero allomorph of {de}. We reject this because the nouns without an overt marker are the regular pattern, and those with basic number overtly marked are a very restricted class; most of those we have observed are included in the examples in this section.

singular meaning is still considered to be implicit in the stem, though latent). Examples are given with a demonstrative in the sequence: ę́·de t'ɔ́·de *this ear, these ears* (bsc. = du./sg.); ę́·gɔ t'ɔ́·gɔ *these ears* (inv. = pl.).

Certain other noun stems are dual/plural when marked for basic number, and singular when marked for inverse number; these are assigned to class II (with the dual/plural meaning latent in the stem). Examples show -gye and -gɔt as allomorphs of {de} and {gɔ} respectively: ę́·de hǫ́·gye *these guns* (bsc. = du./pl.); ę́·gɔ hǫ́·gɔt *this gun* (inv. = sg.).

Additional examples, in which the agreement in demonstratives confirms the assigning of -gye and -gɔt as allomorphs respectively of {de} (bsc.) and {gɔ} (inv.) regardless of number, are shown with class I stem ip'ɔ́·- *baby* and class II stem ákʰį́·- *flowers:* ę́·de ip'ɔ́·gye *this baby* or *these babies* (bsc. = du./sg.); ę́·de ákʰį́·gye *these flowers* (bsc. = du./pl.); ę́·gɔ ip'ɔ́·gɔt *these babies* (inv. = pl.), ę́·gɔ ákʰį́·gɔt *this flower* (inv. = sg.).

Allomorphs of {de} are -de ∼ -gye ∼ -ba; each of these occurs with a specific list of noun stems. Noun stems that suffix these allomorphs of {de} in basic number occur with the {gɔ} allomorphs -gɔ, -gɔt, and -bɔt respectively when inverse number is marked.

Examples of class I noun stems occurring with {de} follow.

With allomorph -de: t'ɔ́·- *ear*, tá·- *eye*, gú·- *horn*, tʰǫ́·- *leg*.

With allomorph -gye: ip'ɔ́·- *baby*, démhǫ·- *breast pin*.

Examples of class II noun stems occurring with {de} are next shown.

With allomorph -gye: hǫ́·- *guns*, ákʰį́·- *flowers*, dǫ́·- *seeds, pits*, pǫ́·-[9] *beads*, c'ǫ·- *downy feathers*.

With allomorph -ba: zé·- *arrows*.

[9] With some informants pǫ́·- occurs in the dual either with or without {de}; it normally occurs with {de} in the plural.

4.2. The noun stems t'áp *deer*, kɔ́bot *boats*, á?okʰɔi *boxes*, bímkʰɔi *sacks*, k'óp *mountains*, cát *doors*, do not occur with {de} or {gɔ}; they are identical in form in singular, dual, and plural. But each has an implicit number which is identifiable by the demonstrative form which may occur in agreement with it. The noun t'ap *deer* is dual/singular following a demonstrative marked for basic number, plural following a demonstrative marked for inverse; it is therefore assigned to class I: ę́·de t'áp *this deer* or *these deer* (bsc. = du./sg.), ę́·gɔ t'áp *these deer* (inv. = pl.).[10]

Other noun stems listed in this section are dual/plural following a demonstrative marked for basic number, singular following a demonstrative marked for inverse; they are therefore assigned to class II: ę́·de kɔ́bot *these boats* (bsc. = du./pl.); ę́·gɔ kɔ́bot *this boat* (inv. = sg.).

5. Class IV is a somewhat limited group of noun stems distinguished by the fact that they are ambiguous dual/singular/plural and are never marked for inverse number; when a demonstrative precedes a class IV noun stem the demonstrative is always marked for basic number. The form of such a sequence is thus identical for singular, dual, and plural. Examples are based on class IV stem hólda *dress:* ę́·de hólda *this dress* or *these dresses* (du./sg./pl.); óyde hólda *that dress* or *those dresses* (du./sg./pl.).

The basic number of class IV nouns is therefore said to be dual/singular/plural.

[10] Another way of treating the noun stems in this section is to set up a zero allomorph of {gɔ} to occur with them when the number is inverse; this would follow the traditional procedure as in zero-marked plurals in English. We consider that it is more in keeping with the actual signalling features of the situation to state, for these nouns, that when the number is marked by agreement in a demonstrative (or in a verb) it is non-redundant (instead of redundant as in sequences of demonstrative plus other nouns); and that when it is not so marked the noun is ambiguous as to number.

Although there is no inverse number to contrast with basic within the class IV nouns themselves, the number is considered basic because of the basic number form of the accompanying demonstrative.

Class IV nouns fall into subclasses IV^{a}, IV^{b}, and IV^{c} on the basis of agreement in the verb prefixes; this is left for future presentation in connection with verb prefixes which mark subject-object. Examples (in anticipation) may be grouped by these subclasses.

Class IV^{a}: c'ó· *stone*, yáypó *rope*, mónk^{h}óy *glove*, tó·de *shoe*, tokį́·nį *boots*, kí *meat*, k'ɔ́·gye *skin*, t'ɔ?á *earrings*, hǫ·t'ɔku· *nail*.

Class IV^{b}: tó *house*, hǫ́?ǫn *road*, p^{h}án *cloud*, sé·có *lake*, só·de *ring*, p'ɔ́· *river*, k^{h}ótep *corpse*, gǫ́mt^{h}ǫ *back*.

Class IV^{c}: hólda *dress*, kút *book*, k'ólp^{h}ą *necklace*, t'ǫ́·gye *shirt*, pál *quilt*, k^{h}ɔ́·de *trousers*.

6. The adjective stems bín (∼ bį́·-) *big* (du./pl.) and él (∼ é?-) *big* (sg.) may follow noun stems; such a sequence may appear in either basic or inverse number. When inverse, the suffix {gɔ} (in its allomorphs -dɔ ∼ -tɔ) is present; it follows the adjective stem in linear order but the inverse number so marked is in reference to the noun stem.

The category of dual/plural or of singular in these adjectives is termed ADJECTIVAL number. It is unlike the basic number implicit in noun stems, in that the adjectival number is constant and is not changed by the addition of {gɔ} to the sequence.

The total number value (in terms of singular, dual, or plural) of such sequences is equal to the number value (ambiguous or otherwise) that is common to both the noun number category (whether basic or inverse) and the adjectival number category (dual/plural or singular). This may be stated in terms of mathematical logic[11] by saying that the total number value is equal to the logical product of the noun number multiplied by the adjectival number.

When adjectives of this type occur in sequence with a noun stem of class I, III, or IV, the value common to both the basic or inverse noun number and the adjectival number (either or both of which may be ambiguous taken by itself) is an unambiguous category.

Examples with class I noun stem cenbó· *cow* (the symbol × indicates logical multiplication or 'common value'): cenbó· bín *big cows* (bsc. du./sg. × adjectival du./pl. = du.); cenbó· él *big cow* (bsc. du./sg. × adj. sg. = sg.); cenbó· bį́·dɔ *big cows* (inv. pl. × adj. du./pl. = pl.).

Examples with class III noun álɔ· *apples*: álɔ· bín *big apples* (bsc. du. × adj. du./pl. = du.); álɔ· é?tɔ *big apple* (inv. sg./pl. × adj. sg. = sg.); álɔ· bį́·dɔ *big apples* (inv. sg./pl. × adj. du./pl. = pl.).

Examples with class IV noun hólda *dress*: hólda bín *big dresses* (bsc. du./sg./pl. × adj. du./pl. = du./pl. [here the resultant meaning is only partially unambiguous]); hólda él *big dress* (bsc. du./sg./pl. × adj. sg. = sg.).

When adjectives of this type occur in sequence with a noun of class II, the basic-inverse contrast in the noun coincides with the adjectival contrast of dual/plural vs. singular. Hence the entire number value in the noun is common to that in the adjective, and the basic number present in the noun remains ambiguous. Examples with class II noun ólp^{h}ą· *ribbons*: ólp^{h}ą· bín *big ribbons* (bsc. du./pl. × adj. du./pl. = du./pl.); ólp^{h}ą· é?tɔ *big ribbon* (inv. sg. × adj. sg. = sg.).

One other pair of adjective stems that marks number in similar fashion is kí·ni *tall* (du./pl.) : kyǫ́y *tall* (sg.). The adjective stem sán *little* (varying idiolectally with syén) does not show number when it occurs with noun stems; but when it occurs with verb prefixes (as do the above named pairs also) it has the forms sán (du./pl.) : sǫ́ (sg.) (varying idiolectally to syén : syón).

[11] Cf. Morris R. Cohen and Ernest Nagel, An Introduction to Logic and Scientific Method 122 ff. (New York, 1934).

7. Harrington, in his work on Kiowa nearly a quarter of a century ago,[12] appears to have used an approach to nouns that is similar to ours. He classified nouns as 'animate' and 'inanimate' (with subclasses), and used for vocabulary entries the singular forms (whether with or without {gɔ}). He then applied the term 'direct' to those cited without {gɔ} and 'reversed' to those cited with it. This noun classification is for the most part mutually convertible with ours. However, although he gave copious data in chart form, he nowhere provided a structural definition of his 'animate' and 'inanimate' or of his 'direct' and 'reversed' nouns; and it was only after getting into the language ourselves that we were able to understand his system and find his materials useful from the standpoint of classification.

Harrington's broad phonetic notation includes practically all the phonemic contrasts marked in our transcription. His treatment of certain allophones is different, but his transcription is remarkably consistent and in most cases can be converted into ours without serious difficulty.

We now state the correlation between Harrington's noun classes[13] and ours. Our class I is Harrington's animate I and II (his differentiation into two groups is based on agreement in certain verb prefixes). Our class II is included in his inanimate II and II^a; but his inanimate II also includes our class III, which he did not identify as a separate group. Our class IV, subdivided on the basis of agreement in verb prefixes, parallels three of his noun classes: our class IV^a in his inanimate I^a; our IV^b is his inanimate I; our IV^c in his inanimate IV.

[12] John P. Harrington, Vocabulary of the Kiowa Language (BAE-B 84, 1928); also Parker McKenzie and John P. Harrington, Popular Account of the Kiowa Language (Univ. of New Mexico Press, 1948). Crowell's presentation of Kiowa does not suggest this approach to nouns; see Edith E. Crowell, A Preliminary Report on Kiowa Structure, IJAL 15.163–67 (1949).

[13] Shown in his chart of noun classes (op. cit., p. 14) and used in his verb charts (p. 238 ff.).

MAIDU PHONETICS

H. J. Uldall

Edinburgh

0. Preface
1. Consonants
2. Vowels
3. Diphthongs
4. Composition of sounds
5. Length
6. Stress
7. Vowel harmony
8. Vowel ablaut

0. This sketch was written in 1932 and is now published unchanged. It is, of course, not the kind of description one would make in 1953, but the Editor argues that the interest of the material in some measure makes up for the deficiencies of the theoretical apparatus.

1. [b] and [d] are implosives or "glottalic clicks". Since explosive [b] and [d] do not occur, special symbols for the implosives have been dispensed with. In the production of these sounds the air-passage is closed at two points, at the glottis and for [b], at the lips, for [d] by the tip of the tongue pressing against the alveolar ridge. A minimum of air pressure is then created between the two stops, mainly by a downward movement of the larynx so that the air rushes into the mouth when the front stop is released. The glottal closure is not released until this implosion has taken place. As to the production of the sonancy observed in these sounds, there is some difference of opinion. Doke in his treatment of the Zulu-Xosa implosives,[1] which are in all essentials identical with the Maidu ones, explains the sonancy as produced by the vocal chords in their downward movement, i.e. a similar effect is produced by the vocal chords moving downwards around a stationary column of air, to that normally obtained by an air current passing upwards through the glottis. In view of the fact that a minimum of pressure is created in the supra-glottal cavities it does not seem likely that any air should pass through the glottis during its downward movement. My observation is that a normal sonant stop is produced before the formation of the glottal closure and before the downward movement of the larynx, so that the minimum of air pressure in the mouth and pharynx is preceded by a maximum. It is possible to pronounce an implosive sound without any sonancy. But it must be admitted that there is no experimental proof of either view.

Long implosives occur in intervocalic position (**5**). As far as can be ascertained by ear alone, it is the voiced part of the stop which is lengthened, i.e. the maximum behind the front closure is maintained for an appreciably longer period, whereas the subsequent minimum is of about the same duration in long and short implosives.

In unstressed position in quick speech the implosion is very weak and is sometimes replaced by voiced or "intermediate" plosives; no doubt the familiarity of all the Indians with English sounds has reinforced this tendency if, indeed, the tendency is older than bilingualism.

The glottalised sounds are of the normal Californian type, i.e. not very strong. In unstressed position they are often replaced by unaspirated surds. They are not released before other glottalised sounds or plosives.

The plosives are aspirated, but in unstressed position they are often replaced by unaspirated plosives, which thus occur as

[1] C. M. Doke, The Phonetics of the Zulu Language (Special Supplement, Bantu Studies, 1926).

subsidiary members of both the aspirated and the glottalised series of phonemes. In order to determine whether an unaspirated plosive represents an ideal aspirated plosive or an ideal glottalised plosive it is therefore necessary to have the syllable repeated with stress on it, and since there are certain syllables which apparently can never be stressed, the ideal affiliations of some [p]'s and [t]'s and [k]'s remain undetermined, an example is the [t] in -atɔy, the quotative suffix.

The glottal stop is used optionally in initial position before a vowel and in final position after a vowel or a voiced continuant. The personal pronouns, which end in vowels or nasals, are never pronounced with a glottal stop, nor are the irregular imperatives: mɛ *take (it)*! and i'pi *approach*! When a final vowel is pronounced without a glottal stop, it is always followed by a slight aspiration. For the uses of the glottal stop in intervocalic position see **3** and **4.**

The nasals are pronounced as in English and have no noteworthy conditional variants. The velar nasal heard before [k], [k'], and [g] in the Northwestern dialect does not occur in the Southern.

[l] is a normal voiced alveolar lateral. After back vowels, especially [u], a velarised variety is used, which may be partly due to the influence of the English "dark" [l].

[s] is pronounced with the tip of the tongue up (the "Germanic" position) and is a trifle lower pitched than the most common English variety being produced slightly further back. This is especially noticeable when the [s] is preceded or followed by [ɜ], in a word like ɜsɜ'sɜs *to have tousled hair* the [s]'s sound almost retroflex.

The semi-vowels are pronounced as in English. In initial position [y] is much more fricative before [i] than with other vowels, e.g. yimim'ni *I have belly-full.* Intervocalically a [y] before [i] is normally not pronounced at all: uk'ɔy-im'ni *I go* sounds [uk'ɔim'ni][2], the ɔ-i being pronounced in two syllables, not as a diphthong. For the formation of diphthongs from vowel + semi-vowel see **3.**

2. Maidu has seven vowel phonemes, two front vowels, [i] and [ɛ], three back vowels, [a], [ɔ], and [u], and two central ("mixed"), [ɨ] and [ɜ].

The principal member of the *i*-phoneme is an unrounded, close front vowel, slightly more open than cardinal number one, of about the same quality as English[3] [i] in *heat.* When short and in an unstressed syllable this vowel is replaced by a more open and somewhat retracted variety, perhaps slightly more close than English [ɪ] in *thin.* The same quality is produced in a short stressed syllable when the vowel is followed or preceded by a nasal or labial consonant in the same syllable—thus ha'tit'ɔm *he quit,* but ha'tɪp *quit!,* and wɛn'tɪn *well.* A [y] will counteract the influence of a nasal or labial to some extent, the first vowel in yɪmka'nɪ *have you got belly-full?,* is closer than the last one but still not as close as an [i] without a nasal or labial. After a [w] an even more retracted vowel is used in short syllables, especially if the syllable is a closed one. Thus the vowel in wittɛ: *one,* is often almost ɨ-like. In unstressed syllables there is a tendency to let the [i] be swallowed up completely by the [w]. In a sequence like 'ni: k'awim mana'yim *my little land,* k'a'wim will often be pronounced k'aum in quick speech. A long [i:] is subject to the same influences but does not deviate as far from the "normal" quality as the short vowel. [ɛ] is an unrounded, half-open front vowel of the quality of cardinal number three, i.e. about halfway between the English vowels in *bed* and *bad.* Though the exact quality of this vowel fluctuates to some extent according

[2] Words in square brackets are written in phonetic transcription, words without the brackets in phonetic orthography.

[3] i.e. Southern British English

to the surrounding sounds, the range of variation is not very great.

[a] is an unrounded open vowe' with a tongue position about midways between cardinal [ɑ] and cardinal [a], or a little further front than English [ɑ] in *father*. It may be slightly rounded after [w] when short and unstressed.

(ɔ) is a rounded half-open back-vowel of essentially the same quality as cardinal number six. When it is short, there is a tendency to a lower tongue position resulting in a vowel nearer English [ɒ] in *hot* (i.e. the rounded variety, not the [ɑ] often used in the United States). The same tendency to a more open articulation is evident when the vowel is nasalized under the influence of a nasal consonant, mɔmi 'mɔs *I want to drink water* often approaches mɒmi 'mɒs. Before and after [w] the vowel is somewhat closer, more o-like, especially when short, thus wɔ'hɔl *to chop thru* [wo'hɔl] while the first vowel in wɔ:'nɔ *to die* is more open though closer than the one in bɔ:'nɔ *to write*.

[u] is a rounded, close back vowel with a tongue position somewhat lower and further front than that of cardinal number eight. It is subject to the same influences as the other vowels and reacts in the same way. The more open articulation in short, unstressed syllables, unless counteracted by the influence of a [w], is especially noticeable. [y] has no noticeable effect on [u].

[ɨ] is an unrounded, close central vowel of a type which, in Europe, is represented only in Russian. The central vowels have been variously termed "mixed" and "obscure" but since they are neither produced by mixing other vowels nor obscure, the International Phonetic Association's term "central" seems more appropriate, the tongue position of these vowels being in the middle of the vowel area between those of the back vowels and those of the front vowels.

The Maidu [ɨ] is slightly more open and further back than cardinal number 17, the lips are rather "neutral" than "spread". This vowel is further front, more truly central than the Southern Paiute [ï] described by Sapir.[4] [ɨ] is more open in a short, unstressed syllable than when long and stressed. A [w] pulls it back and gives it a slight lip rounding, the first vowel in 'wɨk'pay *once*, for instance, varies in quality between [ɵ] in Swedish dɵm (dum) and the first part of the diphthong in Cockney [mɯuzɪk] (music).

[ɜ] is an unrounded half-open central vowel of the same type as the vowel in English *bird* as pronounced in the South of England (i.e. very open and without any trace of retroflex[r]). This vowel, too, is subject to slight rounding under the influence of a [w]. In short syllables, especially when preceded by [m], [ɜ] is retracted so that the second syllable of wɜ'mɜk'pay *to hit against* resembles English *muck* more than *murk*.

It may be said in general that the Maidu vowels are well differentiated and keep their characteristic quality even in unstressed syllables, there is thus no "neutral" vowel.

All the vowels, except [ɨ] tend to be nasalized after, and to some extent also before, nasal consonants, especially [m]; the nasalization is generally accompanied by a lowering of the tongue.

Joviality is expressed by an all-round opening of all the vowels. This is especially noticeable in the three close vowels [ɨ], [ɨ], and u, which become respectively [e], [ə], and [o], at times even so open that they might be confused with [ɛ], [ɜ], and [ɔ]. Thus the mɨ:m miyɛm *that is that*, with which it is customary to end the telling of a story, is usually pronounced mə:m məyɛm the teller being filled with a happy sense of achievement. The incestuously delighted kɨ:pɛm *apt, lively* with which coyote describes his daughter-in-law (in XV, 6) was pronounced kɜ:pɛm. (References of the

[4] Edward Sapir, Southern Paiute, Proceedings American Academy of Arts and Sciences, Vol. 65, p. 7, p. 10ff.

type VI, 6 are to a collection of texts which it is hoped to publish later.)

An in-breathed [i:] expresses (anticipation of) great delight coupled with a feeling of wickedness (see XV, 5); mere delight without the wickedness only calls forth a short hah said on a high pitch.

3. One-sound diphthongs of the kind we have in English do not occur in Maidu, but diphthongs composed of a vowel plus [y] or [w] are very common. All the vowels occur as first part of the [-y] diphthongs, and all but [u] as first part of the [-w] ones. That these diphthongs are composed of a vowel plus a consonant, is shown by their behavior in composition. If, for instance, a suffix like the interrogative [-bɛ] is to be added to such a diphthong, e.g. tuy *to sleep*, a euphonic vowel is interposed, tu'y-i-bɛ'mi *are you asleep?* just as if the stem had ended in any other consonant—sɔl *to sing*, sɔ'l-i-bɛ 'mi *are you singing?*—whereas with a stem ending in a vowel the euphonic [-i-] is not used—[ɛ] *to see*, 'ɛ-bɛ 'mi *do you see?* (see **4**).

Primary combinations of two vowels do not occur at all, secondary ones are not very frequent but do occur and may also give rise to diphthongs—as when the suffix [-i], which forms the perfect, is added to a vowel other than [i], wɔ:'nɔ-i (*he*) *has died* (cf. u-k'ɔ'y-i (*he*) *has gone*). Diphthongs formed in this way, are phonetically identical with the vowel + consonant diphthongs. In most cases, however, a glottal stop is introduced between the two vowels, as in bɛ:'-u *to stand on all fours* from bɛ: *to crawl* + [-u] a suffix giving a static meaning to a verb of motion.

4. All the vowels and consonants occur in initial position, and all but the consonants [b], [d], [tʂ'], and [h] occur as final sound in a syllable.[5]

Consonant clusters in one syllable do not occur at all except in one word, sa'pwiy *three*, where [p] is definitely initial in the second syllable, not final in the first one. Apart from this single instance the final consonant of a syllable is always clearly separated from the initial consonant of the following syllable, i.e. in a word like 'tɛk'na *trap* the [-kn-] is pronounced as in English *pack-net*, not as in German *Knabe*.

Plosives and glottalised plosives are not released before the formation of a following consonant: 'k'ɛt-'pay *to sneak up to* is ['k'ɛt.'pay], not [k'ɛt'pay]; k'a'tap-'sip *to squeeze out* (*liquid*), [k'atap.sip], not [k'atap' sip]; 'p'ɛk'-'pa *to crack* (*nuts*) *and eat*, ['p'ɛk.'pa], not ['p'ɛk''pa].

A consonant, which is final in a syllable, will normally become initial in the following syllable if this begins with a vowel: hu:k' *chief*, hu:'k'-um (subj. case); 'hɔn'dal *breast*, hɔnda'l-i (obj. case); i'daw *to arrive here*, ida'w-im (*he*) *arrives*. There are, however, some notable exceptions. First, the rule noted under [y] in **1.** :a [y] following a vowel and preceding an [ɪ], is not pronounced. Second, no final consonant becomes initial if the following syllable consists of one of the suffixes [-ɛ], [-as], or [-a]; if the final consonant is a voiced continuant ([l], [m], [n], [y], or [w]), a glottal stop is often inserted between it and the following vowel, e.g. 'tuy-ɛ-n *in order to sleep*, ['tui'ɛn]; u'k'ɔy-as-i (*he*) *went*, [u'k'ɔi'asi]; 'sɔl-a-i (*he*) *sang*, ['sɔl'ai]. When a glottal stop is not inserted and in the case of other consonants, there is extremely loose "Anschluss", the plosives and glottalised plosives being pronounced as before a consonant: i'daw-ɛ-tʂ'ɛ-'tɛ *although* (*he*) *came*, [i'dau.ɛtʂ'ɛ'tɛ]; wi'yɔk-as 'ni *I jerked*, [wi'yɔk.as'ni]; mɔ'sak'-a-kani *did you like the taste?*, [mɔ'sak.akani']; wi'dus-ɛ-n *in order to swell up*, [wi'dus.ɛn].

Practically all the possible combinations of consonants occur, i.e. examples can be found of nearly all the consonants immediately preceded by nearly all those which can be final in a syllable. Such lacunæ as there are give the impression of being

[5] With the exception of [b] in the loan-word li:b'le *rifle*.

due to the incompleteness of the list compiled or to accident, rather than to any euphonic law that would bar such composition. Examples of combinations not found are -ltʃ'-, -kp'-, -tl-.

In certain compositions an inorganic vowel is inserted between two consonants, which would otherwise have come in juxtaposition. The vowel used for this purpose is [i] after all consonants but [-k] and [-k'], which require a repetition of the vowel preceding them, instead of the [i]. Thus tʃɔ'l-i-m *head*, k'u'm-i-m *roundhouse*, ida'w-i-m (*he*) *arrives here*, mɔtʃ'udada't-i-m (*he*) *has thin face*, but hu:'k'-u-m *chief*, panda'k-a-m *bow*, da:'k'-a-m (*he*) *wants*, wi'yɔkyɔ'k-ɔ-m (*he*) *jerks*. In all these examples the suffix is [-m], which forms the subjective case in nouns and the present tense in verbs. The "euphonic" vowel is always inserted between this suffix and a preceding consonant, except in the rare cases where another suffix beginning with a vowel is added to the [-m], e.g. wɔlk'ɔ't-i-m (*he*) *steals* but wɔl'k'ɔt-m-atɔy (*he*) *steals, it is said*.

The following suffixes regularly require a euphonic vowel under the same conditions as [-m]: in verbs, the interrogative [-bɛ] (but not the future imperative [-bɛ-]: uk'ɔ'y-i-bɛ 'mi *are you going?*, u'k'ɔy-bɛ-nɛ *you must go*), the participial [-n], the subjunctive [-s], [-sɛ], and -tʃ'ɛ (idaw-mɛn-i-'tʃ'ɛ *if* (*he*) *does not come*, idaw-'mɛn-tʃ'ɛ *if you come*), and -h+vowel; in adjectives, [-yɛ:], a suffix of doubtful meaning, lɔk'-ɔ-'yɛ: *many*, lam-i-'yɛ: *long*.

In some cases double forms exist, one with, and the other without a euphonic vowel, thus both muk'-u-'tin and muk'-'tin *greatly*, wɔsak'-a-'ti and wɔsak'-'ti (*to be*) *pretty* (really *to cause to like appearance of*); in the latter case the tendency seems to go in the direction of keeping the vowel, when the word is used as an adjective, and dispensing with it, when the word functions as a verb: wɔsak'-a-'ti-m kɔnɔ'bɛy *pretty girl*, wɔsak'-ti-m'mi *you are pretty*.

Further, the euphonic vowel is found in a few combinations of prefixes and first-position stems ending in a consonant, with the secondary stem -yɛ: *to proceed*; k'ɔn-i-'yɛ: *to go along stooped*, hik-i-'yɛ: *to flow*, hin-i-'yɛ: *to float*; also in hin-i-pi'piy *to be dizzy* (but hin-'pin *to float towards the speaker*), and in tuy-i-wɔ:'nɔ *to sleep heavily* (*sleep-die*) (XXXI.40).

A few apparently old stem-compounds seem to contain a euphonic vowel in surroundings that would not call for it at the present time, viz. -dus-in'nɔ *to fall, push, break through into the ground*, -dut'-in'nɔ *to fall, push, break down, out of sight*, -him-in'nɔ *action with a sharp instrument*, -dɔk-ɔn'nɔ *to cause to fall*, and several others. -dɔk-ɔn'nɔ is the only example collected, in which the first stem ends in [-k], but even so, the fact that the vowel preceding (-k) is repeated after it in the position where all the others have [-i-], makes it seem likely that the second stem is not -innɔ, -ɔnnɔ but -nɔ, which is extremely common in compounds, that the [-i-], [-ɔ-] is a euphonic vowel, and that the double [-nn-] is due to spurious lengthening (**5**). If this etymology is correct, we have perhaps here an indication of a more wide-spread use of the euphonic vowel in former days. Its present occurrence certainly looks like the remains of a more systematic usage: it cannot be said to have any grammatical function, and there is no phonetic necessity for it, since the consonants it separates can be found in juxtaposition in other forms.

5. That length may be significant in Maidu is shown by such pairs as bɔ'yɛ *snow*, bɔ:'yɛ: *rabbit*; hin'sip *to float out of, on water*, hi:n'sip *to go out first*; haw *fox*, ha:w *to yawn*; ɛ'ti *elder sister*, ɛt'ti *strong*; ɔ'lɛ-m *coyote*, ɔl'lɛm *to swallow a little in order to taste*. The Indians themselves are quite conscious of this difference and will point out that some of the words have to be said "kind of slow". Undoubtedly much of their information on this point is incorrect,

thus the alleged difference between wɔ:'nɔ *to die* and wɔ'nɔ *to wear out* (tr. and intr.) does not seem very plausible.

The position seems to be that while a number of elements are inherently long or short there are also a great many which may be either depending on rhythmic conditions.

Primary long consonants do not exist in Maidu. Secondarily they are produced: 1. when a syllable ending in a consonant is immediately followed by a syllable beginning with the same consonant as in tɔk-'kit *to put the hand down*, hin-'nɔ *to float away on water*, i'daw-wɛsi (*he*) *will come*; 2. by assimilation: k'ɔddɔ'k'ɔy *to face upwards* from k'ɔt-dɔ'k'ɔy, this development appears to be confined to a change from [p] to [b] and from [t] to [d] before [b] and [d] respectively; 3. by doubling a consonant in intervocalic position, thus often miy'ya:'tin for mi'ya:'tin *causing to be thus*, i.e. *in this way*, bal'lam for bə'lam *to jump over*. This doubling occurs only with continuants and has no semantic or grammatical function whatever. Nor is it obligatory or even regular, the same word will be pronounced sometimes with double, sometimes with single consonant. If the doubling serves any purpose—beyond the pleasure the speaker obliviously derives from rolling the word on his tongue—it is that of giving special emphasis not necessarily to the word in which it occurs but to the whole utterance in general.

All the vowels occur both long and short. The length may be either primary or secondary, in wɔ:n'ti: (*he*) *has killed* the first vowel has primary, the next one secondary length created by adding the suffix [-i] [to][-ti], the word is analytically wɔ:n-'ti-i. This type of lengthening by accretion is, however, rare.

Regular lengthening as a process is extremely rare. It exists as hardly more than a tendency in the formation of the possessive case of nouns ending in a short vowel. Thus the final vowel in ka'pa *bear* is usually a little longer when the word is in the possessive case, which is otherwise identical with the absolute form and the objective case. There seems also to be a tendency to make the second vowel in mi'hɛ longer when the word means *his* than when it means *him*.

The "static" suffix [-u] lengthens the vowel of the stem to which it is attached, if it is not already long: his'pin *to stretch leg towards the speaker*, hispi:'n-u *to have leg stretched towards the speaker*; bə'kəl-'kit *to put down on top of*, bəkə:'l-u *to be perched*. The same effect may have been produced by a group of vocalic stem endings, which look like old suffixes thus wi'sal *to pull off*, wisa:'l-a *to pull legs apart*; məp'ɔs'kol *to have puffed-out cheeks*, məp'ɔskɔ:'l-ɔ *to have a round face*. It is possible that the "opening" of the syllable—the final consonant becoming initial in the following syllable—may have had something to do with the lengthening of the vowel.

However that may be it is not possible to phrase any general rule for the present stage of the language, in terms of open and closed syllables. Such changes in length as occur are either of a purely rhythmic character or tied up with definite grammatical elements or functions.

6. There is a very marked difference between stressed and unstressed syllables. The impression of stress is produced by greater loudness—increased breathforce—and by pitch, the stressed syllables being pronounced on a higher pitch than the unstressed ones. Stress does not seem to have any semantic or grammatical function, it has not been possible to find any pair of words distinguished by stress alone.

No definite rule can be given as to the place of the stress in words and sentences, the best that can be done is to indicate tendencies. In nouns the stress normally falls on the last syllable even when the last syllable is a suffix: ki'lɛ *woman*, pətpɔ'tɔ *frog*, hu:'k'-u-m *chief* (subj. case), hipiw-'di *at the camp*, but there are many exceptions such as 'maydik *man*, 'maydik-i-m, 'maydik-ɛ, ɔkɔ'pɛypɛy *horned toad*, which has a

double stress with case-endings: ɔkɔ'pɛypɛ'y-i-m. In the verb the stress usually falls on the syllable immediately before the tense-suffix: hunmɔ'k'ɔy-t'ɔmatɔy (*he*) *went hunting, it is said*, wa:'sa'-asi *he kidnaped*, hɛ'nim-wɛsi (*he*) *will talk*, hɛnim-'ti-wɛsi (*he*) *will cause to talk*, hɛnim-ti-'mɛn-wɛsi (*he*) *will not cause to talk*. In the present tense, however, the stress falls on the syllable containing the tense-suffix, [-m:] sɔ'l-i-m (*he*) *sings* wa:'sa-m (*he*) *kidnaps*, wa:sa-mɛ'n-i-m (*he*) *doesn't kidnap*.

In compound verbs there may be stress on each stem or only on one: wɔ'yɔ:-'k'ɔy-t'ɔmatɔy (*he*) *sent away*, wɛydɑ:-'k'ɔy-t'ɔmatɔy (*he*) *went to tell, it is said*. The latter seems to be the more common procedure. Occasionally a stem keeps its stress even when a derivative suffix comes between it and the tense-suffix: i'dɑ:-'ti-t'ɔmatɔy (*he*) *let down*. Verbalizing suffixes on noun stems usually carry the stress: kilɛ-'pɛ *to marry*, hi-'yɑ *to make a house*. Likewise nominalizing suffixes on verb stems: wɔ:nti-'hi *the act of killing*, siyɛ:-'mɑ *that which* (*was*) *made*, tɔkis-'pɛ *cook*. An exception is -yu : 'tuy-yu *bed*, pɑ'yɛl-yu *eating instrument*.

Imperative and subjunctive forms have the stress on the last syllable: u'k'ɔy *go!*, ipin-'wɑ *approach, ye!*, wɔ-nɔ-'sɛ *when I die*, sɔl-i-'tʃ'ɛ *when* (*he*) *sang*, pay'yɔ-n *dancing*, hɑ-tʃ'ɛ-'tɛ *though* (*he*) *said*. The second person forms do not follow this rule: sɔl-'mɛntʃ'ɛ *when you sang*, hɑ-'mɑ-mtʃ'ɛ-'tɛ *though ye two said*. It would hardly be possible to go on listing rules and exceptions.

Sentence stress is as irregular as word stress. Independent personal pronouns are always stressed, whereby the immediately preceding verb loses its stress if it has less than two unstressed syllables between its last potentially stressed syllable and the pronoun: uk'ɔyim'ni *I go*, wɔ:ntiwɛs'na:s *we* (2) *will kill*, but u'k'ɔywɛsmatɔy'mi *it is said that you will go*; also uk'ɔ'yim 'mi:m *he goes*, mi:m being a demonstrative pronoun, though the reason for retaining the stress on the verb is more likely that a pronoun really is not needed there, the verb without a pronoun in itself indicates third person.

The texts and examples in the grammar are written in orthography based on ideal sounds, not in transcription; hence the stress marks indicate word-stress, not sentence-stress.

7. A system, or rather, the rudiments of a system of simple vowel harmony is operative in Maidu. The process is at the present time very limited, but the existence of a number of di-syllabic stems with the same vowel repeated in each syllable would seem to point to a much more extensive use of vowel harmony at an earlier time, e.g. -p'ɑlɑs- *to double up*, -lɑkɑs *limber*, -hɔlɔk- *to open* (*intr.*) (see further **8**).

As a living process vowel harmony is now limited to the formation of a few prefixes and one suffix. Some of the prefixes have several forms, the vowel varying according to the vowel of the stem to which the prefix is attached, thus mɑ-, mɔ-, mɜ- *with the mouth*: mɑdɑ: *to let go grip with teeth*, mɔ-bɔl *to break with teeth*, mɜdɜm *to break with teeth*; tɔk-, tɜk- *with the hand*: tɔk-dɔy *to bump against with hand*, tɜk-hɜy *to wake up by putting hand on*; (ɔ-), (ɜ-) *with the head*: ɔ-hɔlinnɔ *to pierce with head*, ɜ-hɜypay *to rest head loosely on*. The two last mentioned have only two forms each, the [ɔ-] form is used with all stems except those containing an [ɑ] in the first syllable, so that in the majority of cases the harmony is not complete: ɔ-hihis *to move head from side to side*, ɔ-dak *to break with head*, etc. There can therefore be no doubt that we are dealing with the prefixes [tɔk-] and [ɔ-] each with a variant, [tɜk-] and [ɜ-] respectively.

With three longer series of variants the case is somewhat different. The series are bɑ:-, bɑ-, (bɛ:-), bɔ(:)-, bu(:)-, bi:-, bi-, bɜ-; wɑ(:)-, wɛ-, wɔ(:)-, wu-, wi-, wɜ-; yɑ-, yɛ(:)-, yɔ(:)-, yu-, yi:-, yɜ-. Of these bu(:)-, bɜ-, wɛ-, wu-, wi-, wɜ-, yu-, and yɜ- occur only by vowel harmony, the others

each have a more or less definite meaning and, from this point of view, do not form a continuous series, thus [bi-] is associated with the eyes, [bi:] with blowing, [bɛ:-] with crawling, etc. Nevertheless there are examples of vowel harmony cutting across this system of differentiated meanings, thus bi-himminnɔ *to stab* (*with a knife*), where [bi-] can only be explained as standing for an ideal [bɔ-], a prefix with a very general meaning of *with an instrument*, in spite of the usual association of [bi-] with the eyes—e.g. bi-hihis *to look around*, bi-mal *to get skin scraped off close to eyes*. In the NE dialect such examples of harmonic changes against the differentiated meanings, are more common than here, although even there the prefixes are now considerably more differentiated than reported by Dixon 30 years ago.[6]

In view of the form of the prefixes, and since vowel harmony exists and probably at one time was much more influential than now it seems likely that the three series of prefixes mentioned were originally three series of harmonic variants, whose principal members, on the analogy of [tɔk-], [ɔ-], [mɔ-], etc., were probably the ɔ-forms: [bɔ-], [wɔ-], [yɔ-], and that these originally mechanical variants came to be associated at a later date with definite meanings of their own. This hypothesis is strengthened by the fact that the three series are not equally differentiated: [bi-] and [bɛ:-] have specific meanings, whereas [wɛ-] and [wi-] occur only by vowel harmony. It is possible that the meanings of the prefixes have been influenced by an admixture of homonimous stems. The above mentioned bɛ:- *by crawling* must have been a stem rather recently, for though it does not occur alone, it is found combined with a derivative suffix: bɛ:'-u *to stand on all fours*. Undoubtedly, also, the limitation of the use of [bu-] has been helped along by the existence of a first-position stem bu *to fart*, which, as I found by experience, makes any combination where [bu-] is apprehended as [bu] and not as [*bɔ-], into a "naughty" word.

It is conspicuous that in these series all the vowels are represented except [i]. There are no prefixes [bi-] or [yi-]; a wi(:)- *by pulling* does exist but it does not seem to belong to the other w- prefixes.[7] No doubt it is closely related to a first-position stem, wi *to pick out*. Neither this nor any of the other prefixes containing the vowel [i], has any harmonic variants. The absence of [i] in the series is worth noticing because, as will be seen in the following paragraph, this vowel has no place in the ablaut system either.

Apart from the prefixes, vowel harmony operates only in a single suffix, [h] + vowel, which nominalizes verbs. Unlike the harmony prefixes this suffix has not a primary form of which the others are conditional variants, the vowel varies absolutely according to the laws of simple harmony, i.e. the vowel of the suffix is a repetition of the vowel immediately preceding: unɔ-hɔ *the act of going*, maydikya-ha *made man* i.e. *dummy*. If the element preceding the final suffix ends in a consonant, a euphonic vowel is put in (see **4**), and it is this vowel which is repeated in the suffix: siyɛ:wɛs-i-hi (*that*) *which is to be made*, wiyɔk-ɔ-hɔ *the act of jerking*.

8. The Maidu system of vowel ablaut is even more fragmentary than the vowel harmony. It is limited to a small number of stems and is, I am reasonably sure, no longer a living process. The vowels involved are [a], [ɔ], [ɛ], [u], [ə], and the choice of vowel seems to indicate in a very general way the degree of intensity or magnitude of the action or state described. Thus mə-p'ɔs-kɔ-kəl and mə-p'əs-kə-kəl *to have round face*, the former said of an adult, the latter of a child. However, one cannot with certainty ascribe a definite degree to each vowel

[6] Handbook, pp. 694–99.

[7] As also pointed out by Dix, op.cit. p. 698.

or formulate a scale that will work in each case, though it may be said in general that the [a-] and [ɔ-] forms are associated with a higher degree than the other vowels, of which [ɛ] especially seems to have something of the force of a diminutive, e.g. wi-tʃ'ap *to tear*, wi-tʃ'up *to tear off*, wi-tʃ'ɛp *to tear partly*; mɔ-k'ɔl-sip *to bite off a chunk leaving a hole*, mɔ-k'ɔl *to bite in two*, mɛ-k'ɛl *to have a gap between teeth*. Possibly dum *wet* and dɛm *damp* were formed on the same principle.

Often one or more forms in a series will have a more specialized meaning than the rest while still fitting into the general pattern. Thus -hɛy has a general meaning of being next to: hu-hɛy-pay *to put next to* hɛ-hɛy-nɔ *to pass by*, yɔ-hɛy *to be among*; -hɔy means *to awaken*: si-hɔy *to awaken by poking with stick*, hɛ-hɔy *to awaken by walking against*, ɔ-hɔy *to awaken with head*, but in composition with -pay, which adds a vague idea of proximity, it returns to the general meaning of the series: si-hɔy-pay *to put stick next to other sticks*, hɛ-hɔy-pay *to walk against without hard impact*. ɔ-hɔy-pay *to rest head loosely on*. Compare also the series wi-sa:l-a *to pull legs apart*, wi-sɛ:l-ɛ *to pull legs a little apart*, wi-sɔ:l-ɔ *to pull head back*—also wi-sɔ:l-ɔ *to wrinkle up (rag, hide) by pulling*, which may not belong to this set at all.

The two vowels [i] and [ɨ] do not seem to form part of the ablaut scheme although in many cases they fit in formally: wi-dak *to pull off*, wi-dɔ:-dɔk *to pull away*, wi-duk-wi-duk *to pull up repeatedly, to weed*, wi-dɔk-k'ɔy *to catch with pulling motion*, but -dik *to arrive away from the speaker*: yɔ-dik *to reach there with arrow*—really *to arrive by shooting*—tɔ:-dik *to bring away from speaker*; -dik also occurs e.g. in mi-dik *to be true*, also as a verbal suffix meaning *to repeat* and as a nominal suffix forming adjectives, which might be translated *full of* —.

Misfits with other vowels also occur, in the [s] + vowel series, for instance, only the [ɔ-] and [ɜ-] forms really belong together: hɔs-sa *to shout (plur.)*, hu:-sa *to lead dance*, hin-sɛ *to dine, noon*. bi-sɔ *to be blind*, i.e. *to fail with eyes*, mɔ-sɔ *to be unable to eat, sing, talk, etc.—to fail with mouth*, wu-su *to cover*, bu-su *to cook blood or guts*, his-si *to be lightweight*, ɜm-sɜ *to fail (in general)*. Whether or not the aberrant [a-],[8] [ɛ-], and [u-] forms ever belonged to the series, of course one cannot say; as it stands, they look like accidental homonyms of the (missing) regular members of the series.

On the other hand there are also examples of different degrees being expressed by different stems but with the appropriate variation of quality: mɜ-sɜ-sɜs *to be lightly bewhiskered*, mɔ-hu-su-suk *to be heavily bearded*; wi-p'ɔnɔs-pay *to bend into a circle*, wi-p'ɔlɔs-pay *to bend into a circle (small thing)*, but there are not enough examples of this kind to prove that degree can be indicated absolutely, by the vowel quality, outside of a series of variants.

Dixon's[9] material and my own superficial analysis seem to indicate a similar stage of vowel ablaut in the NE dialect; of the NW we have too little material to be able to tell.

[8] There is a suffix -sa meaning *to try, to be occupied with* which may have been part of the series.

[9] Pp. 696 and 723 ff.

SHORT DAKOTA TEXTS, INCLUDING CONVERSATIONS

ELLA DELORIA

FLANDREAU, SOUTH DAKOTA

0. [Introduction]
1. Newly recorded expressions in Dakota
2. Odd words and sayings
3. A Dakota greeting
4. A Dakota proverb

0. [The following texts are a small fraction of the riches found in the Franz Boas Collection and deposited in the Library of the American Philosophical Society. For the very attractive format of the published version, we are indebted to Elsie Dosch of the IJAL editorial staff, and to Ella Deloria who not only gave us permission to publish these texts but who also supplied us with addenda and corrigenada for the final version; these were adapted for the paper as it now stands by Beatrice Medicine Garner, a Dakota speaking graduate student at the 1953 Linguistic Institute. CFV]

1.1. Wakpála kị hél op·áya eyá tuwáwaka t·ípi?; awáska eyàyak·ak·aka. [Creek . . . the . . . there along its course . . . to say . . . various ones . . . so to speak . . . they live; Awaska-and . . . various of his kind.]* (Along that creek nobody lives, who is anybody. Just Awáska, and others of about his kind.)[1]

1.2. k·oškálaka eyá ópta hiyáyapi nạ mic·úkši t·iyópoštạ . . . yạkáhạ yuk·ą́ "huhí, nakéš léc·iya wíyạ wạ c·a yạké ló," eyápi? . . . c·ạpág.miyạ ilàzata nawážį c·ạké wạmáyakapišni c·a. [Young men . . . some . . . past . . . they went along . . . and . . . my daughter . . . in the entrance way . . . she was sitting . . . and so . . . "Well, well . . . over here . . . woman . . . a . . . real woman . . . such . . . she sits" . . . they said. Wagon . . . behind . . . I stood . . . therefore . . . they saw me not . . . it being so.] (Some young men were going by when my daughter was sitting in the doorway, and remarked "Ah! at last over here is a woman sitting who deserves to be called a woman!" I was standing hidden back of the wagon so (they did not see me.)[2]

Comment on **1.2** above: The older women, who retained the old-time standard of conduct for women, were proud of daughters who behaved in accordance with it. But there are also some "sophisticated" mixed-bloods who have been weaned away from Dakota life and who sometimes vaunt their independence of its rules. When a girl was thoroughly trounced by the irate wife of a man she had been running around with, her mother said lightly, "Ah, well, what of that? A girl must have her fun while she is young!" This was interpreted to the full-bloods who were completely shocked at the change in ideas.

1.3. *Bishop* híkta c·a owólitat·ų tk·aš miš šá akléklepi . . . wạ wéc·ų?. c·aké iyúha amáyutapi nạ "wạ! wíyạ kị ká tuwé huwó?" eyápi c·ạké, "wakíyạ-wašté hé t·awícuwe ló," eyá awìc·ayuptapi?. [*Bishop* . . . was to come . . . so . . . there was great

* Where given, literal translations are enclosed in square brackets, with three dots inserted to indicate Dakota word boundaries; free translations are given parenthetically.

[1] There is something disparaging in this construction, something like when one speaks of "him and his ilk". Compare a *on*, wa *snow*, ska *white* = *Frosted over*.

[2] She, the mother, was mildly bragging, representing that her daughter by her superior behavior, was sought out by men, who were looking for just that kind; a woman who behaved with the womanly characteristics that men admire; and the men failing to find one amid the crowds in the center of the circle where things were going on, had to go out of their way around the circle where it was supposed no young girl would be sitting, and there they found her.

excitement . . . but indeed . . . as for me . . . red . . . on-placed placed . . . a . . . I put on my own . . . . Therefore . . . very . . . they looked—at me . . . and . . . "Ah! . . . woman . . . the . . . that . . . who . . .?" . . . they said . . "so . . . Thunder-good . . . that . . . his wife . . . is . . ." saying . . . they answered them.] (There was great confusion over the Bishop's coming. But I got ready by putting on that my dress with the red polka-dots. So everyone turned to look at me, and asked, "Who is that Woman?" "Why, don't you know? That is Good-thunder's wife" they answered them.)

Comment on **1.3** above: ša *red*; ag.lég.lepi *set down upon*, with the same idea as stamping dots of red on; similar to the motion of the typewriter setting letters on paper. This remark has been repeated as a funny story, simply because the woman who said it had an impediment in her speech, and never could say g.l; she said oklála for og.lála. And all other words with g.l were pronounced that way. Another amusing thing is that Good-thunder and his wife were very obscure people. Nobody would notice her in a hundred years; neither her looks nor her deeds or her husband's deeds would attract attention. So people laughed about her, that she should so naively esteem herself and her husband to such a degree. Compare: kic?ú *to wear one's own*; wéc?u *I wear mine, I don*; u *to wear*.

1.4. T·iblo, waná *Alice* kiktá he?[3] [Elder brother . . . now . . . *Alice* . . . is she up?[4]] (Brother, is Alice up now?)

hą. [Yes.]

išníkal eš! (it is a wonder; that's a lucky break for me. That's more than I dared hope.)

hą kitá ec·íyela hcíš kiktá k?u. [Yes, . . . by the greatest effort . . . indeed . . . she got up . . . the-past.] (Yes, it's a wonder but she is up. It cost her plenty of effort, too, but she is up.)

Comment about early rising in **1.4** above: It was much more of a stigma to be known as a late riser in a Dakota society than it is among white people. It indicated laziness, lack of moral stamina, will-power—all those qualities that one would not like to have. When a child sleeps late, and has difficulty getting up nowadays, the elders exclaim, "yú! eca lé ehą́ni yuk·áš tóna ųyą iyáyapi t·ąíkte šni tk·á ye lé!" yu! (an expletive indicating scorn, pronounced short and snappily) if these were olden times, the number of times this one would be left behind would be hard to count. Meaning: In olden times, the people had to be ready to strike camp and move at a moment's notice; everyone had to be active, to jump up the instant he was called, for nobody could expect to be waited for by the moving tribe. Of course, parents would throw their own children onto a horse or in the back of the travois, even while still sleeping; but it is on record that orphans or homeless ones were sometimes left behind because no one person felt responsible enough for them to see that they were up, and starting forth with the rest. It is a favorite topic, this matter of being late risers. Joking relations are always pretending that their joking opposite is a late riser, even when they are well aware that such is not the case.

1.5. *Alice:* Vine waná lé-ąpètu kį tuktél ú he? [Vine . . . now . . . this-day . . . the . . . where . . . is he . . .?] (Where is Vine to be, today?)

I: eyá lé.ąpètu kį *New York* ot·ųwe kį hél wóg.lakįkta wąš; nąhíhąni kįh-ą waná *Washington* ektá yí nąak·ótąhą hąhèpi kįhą waná hél wóg.lakįkta wąš. [Well, . . . this-day . . . the . . . New York city . . . the . . . there . . . he will speak . . . it is so indeed; . . . and . . . tomorrow . . . the-then . . . now . . . Washington . . . to . . . he goes . . . and . . . beyond that . . . night . . . the-then . . . now . . . there . . . he will speak . . . it is so indeed.)

[3] **1.4** and **1.5** are simply examples of joking. This is between brothers' sisters and one the brother calls sister-in-law.

[4] It was ten o'clock. Elder brother is Alice's husband.

Alice: šiká! ehą́ni ešáš wąží owáwa nų yuhá yewák·iyelašni! tók·ešk·e yuhélhel nážįkte lé! [Poor thing! . . . earlier . . . why not . . . one . . . I write . . . and . . . having . . . I sent him . . . (why) not? . . . In what a way . . . reaching out vainly . . . he will stand!]

(*Alice:* Just where is Vine today?)

(*I*: Well, let me see; he is supposed to speak in New York today and then tomorrow he goes to Washington; and the following evening he speaks there, his big speech.)

(*Alice:* Ah, poor thing! Now why didn't I think to write a speech for him to take along? How thoughtless of me to neglect it! As it is, I can just see how pitifully he will grope about for something to say.)

Comment on **1.5** above: Alice calls Vine brother-in-law because her husband called Vine Brother. Or he might have, but they did not know each other. But her husband was a Yankton and as the kinship is figured out from other kinships that still stand, it is logical for Alice's deceased husband whom Vine never knew, to have been Vine's elder brother—and mine. On that basis, Alice jokes with Vine as a brother-in-law, and me as a sister-in-law, and Vine and I joke back. The amusing thing about these remarks of Alice's, from the Dakota standpoint, is that obviously, as everyone knows, Vine is really better gifted to speak. It is his line; he has been taught and he does it much better than she ever could. But here she pretends to a higher ability, discounting all the knowledge that Vine has along that line. It does not sound funny in English, but this sort of joshing, about a brother, made to the sister who is expected to fight back for him, is the usual style of joking between these two relationships.

1.6. Some men were heard joking and talking; they spoke of a man who said smoke got in his eyes, which meant that he was in the thick of many a fight. "k?éyaš ecéš t·awóyuha wanína c·aš wécilowąšni?" [But . . . all too sadly true . . . his property . . . it is nil . . . so indeed . . . I did not sing for him.]

Comment on **1.6** above: It seems that when a warrior made some such reference to his war prowess as this, his hearers started to laud him in song, and when they did, he gladly gave them goods, horses, etc., in a give-away. Nowadays they do not do this, but the man who made this comment was a brother-in-law. He was only joking.

1.7. There is a man out here who, when he starts any new practice, goes into it with all his might. Recently he has become converted to Roman Catholicism and now he crosses himself constantly on any and all occasions.

Recently a prominent man in the community where he lives was dying. He had an ailment which made him grow violent at times, and he had to be held. Just relatives and friends took care of him because they did not want him handled impersonally, they said.

The first mentioned man entered the room where the sick man lay on the floor. Squatting beside him, he began to pray for him, crossing himself and naming the Trinity over and over. About that time the sick man had another seizure which made it necessary for his friends to hold him down. Instead of helping them or getting out of the way, the prayerful one remained where he was, all unconscious of everything but himself and his praying. He is quite a large man and with him squatting there the friends of the sick man were unable to get around him to hold the man in agony. Finally one of the women who was utterly disgusted and frantic, cried out, "ob.lúspįkta tk·a, ec·ą́l lé él yąkį́ nų! tók·i k·eš íyotakį nų héc·uhe šni, éktą́ létulaнcį, hecá c·a heyókile s?e!" [I would hold him . . . but . . . meantime heedlessly . . . this one . . . at (the sick man's side, in the way) . . . he sits . . . and! . . . Somewhere . . . else . . . sit down . . . and . . . be doing that . . . (why) not! . . . (in an aside) . . . buzzard . . . such . . . hunting lice on himself . . . like!] (There he sits right in

my way, so I can't get to the sick man to help him. What a place to sit, anywhere else at all would do, yet here he sits, like a buzzard hunting lice over himself!)

Comment: The reference is to his rapidly touching parts of himself, in crossing himself, as his forehead, etc.

2.1. waná oyé at·ą́į dó. [now . . . track . . . visible]

Comment on **2.1** above: This remark on the weather was made by an old Santee man who came to the door during the first light snowfall. When asked for the explanation, he said that in the forests in Minnesota, the Santees awaited the first snowfall eagerly because then they would be enabled to see well the tracks of the deer and so to trail them. Hence, he said, when snow first fell lightly, there was great rejoicing and people greeted one another with the observation, "Now are the tracks visible!" in much the same way that people exclaim, "Happy New Year!" or "Merry Christmas!". . . . . .

2.2. t·akóža ʜtál-ehą́ni úktenc̣į éyaš iyówak·išni c·ąké ąpél-átaya p·ul-kíc?i̧kel oǫ́ye?[5] [Grandchild . . . as early as yesterday . . . to come she wanted very much . . . but . . . I forbade her . . . therefore . . . all day . . . upper lip carrying like a load, as it were . . . she was, had her being.]

2.3. miyéc·o c·a wahíkte éyaš ec·ą́l mic·i̧kšila él mahí nų mayúopežašni? [you sent for me . . . such being the case . . . I would arrive here . . . but . . . just then, untimely . . . my little son . . . to . . . me-came . . . and . . . threw me off; confused me] (I'd have been here long ago in answer to your summons, but as I was about to leave home, my sister's little son came in, and delayed me, twisting all my plans.)

2.4. kašíkšil-wìmap·i laʜ. (How full, satisfied, I feel, though I have eaten no real meal.)

[5] p·uté *snout, upper lip*; k?i̧ *to carry on the back, as a load*; ki *her own*; kel *in a that sort manner*. (That is, with puckered upper lip, that looked like a load she was carrying.)

Cecelia kašíkšil-hòwašte ye lé, tǫ́wena awáb.lezešni yųk·ą́ (*Cecelia* actually has a good voice, a fact I had never realized before. By hook or crook she has learned to sing well, without any particular reason why she should, without hearing much singing.)

Comment on **2.4** above: One man said this, meaning that by eating a bit here and there he had no further need of food, though no one thing he ate was especially wonderful. *By odds and ends* is the free meaning of kašíkšil, always an adverb; compare ka *instrumental*, šíca *bad*.

2.5-6. lekši mázaská wą ehą́ni ųyák?upi ų hé nakéš wíyop·eųyąpikte ló. Lehą́l waná ag'uyapi-wak·ą ųkíyuc·ąpi[6] c·a héc·a iyóp·e-ųyąpikte ló. héc·etu-yala hą́tąhąš. [Uncle . . . metal . . . white . . . a . . . long ago . . . you gave us . . . the-past . . . that . . . at last . . . now . . . we shall spend. At this time . . . the . . . bread-holy . . . we are low on . . . therefore . . . that-kind . . . we shall spend it for. You approve . . . if-then.]

of the sea; uproar.

2.7. p·éta awímayuškį [Fire . . . on me rejoices . . .] (The fire is happy for me, i.e., when tiny sparks suddenly leap from the fire, like crackers, at a person's direction while sitting around the hearth. It is a sign of pending good fortune for the one so singled out.)

2.8. yú! wanáci í yuʜmíʜmipikte šą́! [Ghosts . . . mouth . . . they will pull awry . . . lest.] (She better look out, lest the ghosts pull her mouth awry.)

Comment on **2.8** above: It is believed that when one offends the ghosts by any of the various ways ghosts pull the face of that one into a crooked expression. Strokes resulting in such a thing were of course thought to be the work of malicious ghosts. Compare ʜmi *crooked*; *out of alignment*; *asymmetrical.*

[6] iyúc·ą *to be hard up for, short of, running low on*, as a supply. c·ą *to shake*, may be the stem, but otherwise the writer cannot explain it; iyúc·ą seems to be quite a regular word.

yu spoken sharply is a warning note by women only.

2.9. winúŋhcala kį hé ehą́ni úšiwalake éyaš líla ig·lášicela s?a c·ą́ké waná k·owákip·e? [Old woman . . . the . . . that . . . formerly . . . I used to take pity on . . . but . . . very . . . she complains of bad treatment . . . regularly . . . so . . . now . . . I fear her.] (That poor little old woman has the unfortunate trick of complaining about how she is treated, till I am actually afraid to see her even, though I used to try to be kind to her.)

Comment on **2.9** above: yašíca *to talk, saying ill of*; g·lašíca *to condemn something belonging to self*; ig·lášica *to complain of the way one is treated*; usually it is done by very old people who are not satisfied with the attentions of the younger people.

3.1. *Robert Bad Wound:* há.o, t·ìpi-sàpa! (How do you do, T·ipi-Sapá!)

Vine: wą́, žoyáyįkte ló wą́! (Be careful, you might cause him to whistle!)

Robert: hoh? w ką́?éya, ųkís eyá lé tąyą́kel t·ìpi sápa-ųnìg.luhape ló (Nothing of the sort! On the contrary, for, seriously, we too, in our humble way, must have our Tipi-Sapa, you!.)

Vine: oh́ą́, ec·a, há.o (Well, in that case, how do you do?)

Comment on **3.1** above: The foregoing was actually heard on the street. Robert Bad Wound is a prominent committee man on the Og·lala Tribal Council. He never knew T·ípi Sápa (my father) except by hearsay. But he does know Vine, though only slightly. Vine's answer, "Be careful, or he might whistle," is a reference to a belief, or a half-belief. I do not know the origin, but it is said that the dead are all about us, and that when anyone boldly calls the name of one who is dead, the ghost replies by a short, loud whistle. People dread ghosts and are disturbed if they hear a ghost whistle; therefore they are very careful not to name one who is dead.

Only warriors and great men may be called. In that sense, Bad Wound called my father's name—a compliment to us—and Vine was in turn very correctly modest, in not assuming that he is great. "My father is just my father," was Vine's very correct attitude. Bad Wound then complimented Vine further, saying, "Let Standing Rock and Yankton have their T·ípi Sápa. We have ours, and it is you."

This remark, "Don't make him whistle," does not sound irreverent or disrespectful when said in Dakota. You can conciliate the dead further by giving a gift as you say their names aloud. Often this was done in the old days. Only recently a woman's sewing society of long standing had its annual meeting, and someone asked that the names of all deceased members be read, as a kind of memorial. As the society was a Christian gathering, most of the women heard the names in silence and with quiet respect, but without any dread of whistles. Most of the members were younger women, who know the traditional belief about ghost names, but who have been educated away from this belief in white schools. There was one old woman present, the last of the charter members, Mrs. Red Eagle, who sat at the door and after each name she lowered her head into her blanket and muttered something. When my mother's name was called, she arose and interrupted the reading of names by marching across the room to the officers' table and slamming down a silver dollar. "Take it!" she exclaimed, as if she could not bear the names any longer, "At least my niece's name shall not be called in vain!" (Mrs. Red Eagle was my mother's aunt only by social kinship, but the two were devoted to each other to the day of my mother's death.)

4.1. wíyą kį tukté-wą́žì pahá-aìsiyą wą́láka ya·cí kį hecéla ki·cí pahá-aìsiyą yá yó! [woman . . . the . . . which one . . . hill-beyond, . . . to see . . . you went . . . the . . . only that one . . . with . . . hill-beyond . . .

go!] (Take only that woman beyond the hill that you want to see beyond the hill.)

Comment on **4.1** above: A young college bred man who was working for the government but was still very much an Indian at heart, was quite disturbed because when he had promised to attend a conference in a distant city, a white woman who was trying to get his attention promptly made arrangements to ride with him. He asked his friends if he could possibly tell the woman it was against his code to go with a woman not his wife, unless he wanted her; whether it would hurt her feelings, or would she think him peculiar. When he attempted to withdraw his promise to attend the conference, those in charge pressed him for an explanation. He explained, saying that he had never gone in company with a woman and couldn't now, because instantly his position in the tribe would be changed. They were very understanding and it was arranged that the white woman did not go along.

The Dakotas still feel that man should pursue and woman should be passive; and they are thoroughly disgusted by open attempts to gain the attention of men.

CHATINO FORMULAS AND PHONEMES

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1. Formulas for consonant sequences
2. Consonant phonemes
3. Vowel phonemes
4. Tone phonemes

1. This paper presents the two major parts of the Chatino[1] phonemic system: (1) the formulas in terms of which all Chatino word-initial[2] consonant sequences may be described, and (2) the individual phonemes of the language.

It has been found that in Chatino, larger consonant sequences include smaller sequences, and that most of the smaller sequences can be predicted from the larger. In his work, On the Principles of Phonematics, Hjelmslev suggests that larger sequences are built upon the smaller. He says: "The grouping relations allow us to define each phoneme according to its combining power. In examining this sort of relation it is sufficient to examine clusters consisting of two consonants. It can be stated as a general phonematic law, that if a language admits more complicated consonant clusters, consisting of more than two consonants, these complicated consonant clusters never admit combinations which are not admitted in simple clusters of the same language. In English you can have the initial cluster spl, as in split, only because you can have the initial cluster sp, as in spun, and the initial cluster pl, as in pliz." However, given the smaller sequences of two consonants, one cannot be sure that all possible sequences of these, resulting in three or four consonants, will appear in a given language. Hence we have investigated the larger sequences. This investigation has resulted in a formulaic procedure for predicting consonant sequences in Chatino.

The formulas include all sequences of four consonant phonemes, all sequences of three which are not included[3] in the sequences of four, and a few sequences of two which are included neither in the sequences of four nor in those of three. In formulaic representations, C represents any consonant, and a subscript numeral indicates the position relative to the vowel which follows the consonant sequence. The formula $C_4C_3C_2C_1$- includes also $C_4C_3C_2$-, C_4C_3-, $C_3C_2C_1$-, C_3C_2-, C_2C_1-. The formula $C_3C_2C_1$- includes also C_3C_2- and C_2C_1-. A sequence of consonants which is used as a formula for predicting other consonant sequences in the language is called a FORMULAIC SEQUENCE. For example, the formulaic sequence tškw- as found in the word tškwọ ($C_4C_3C_2C_1$-)

[1] Chatino is spoken in the district of Juquila in Oaxaca, Mexico. This paper deals with the dialect spoken in the village of Yaitepec, which is one hour's walk from the central town, Juquila. The material presented was collected under the auspices of the Summer Institute of Linguistics during field trips between 1947–49. I wish to express my appreciation to my predecessor in the field, Milton A. Gabler, and to my other colleagues of the Summer Institute of Linguistics for their help in the presentation of this material. The data regarding the formulaic sequences and their function were presented at the summer meeting of the Linguistic Society of America at Ann Arbor, July 29, 1949.

[2] Since the majority of Chatino words are monosyllabic, word initial consonant sequences are greater in number and complexity than sequences in other positions. Word medial sequences usually contain only two members, though there are a few containing three. Since medial sequences follow the same general type of pattern as initial ones, it has not seemed necessary to include them here.

[3] Included sequences are sequences of contiguous consonants which constitute part of a larger sequence: e.g. sp- is included in spr- in the English consonant sequence seen in the word *spray*.

iron also includes the smaller sequences seen in the words tška ($C_4C_3C_2$-) *get well*, tša? (C_4C_3-) *reason*, škwí? ($C_3C_2C_1$-) *pure*, škā (C_3C_2-) *another time*, kwi?yā (C_2C_1-) *gopher*. The formulaic sequence sly- as seen in the word slyá? ($C_3C_2C_1$-) *cotton* includes the smaller sequences seen in the words sla (C_3C_2-) *sleep*, and lyú? (C_2C_1-) *little*. The formulaic sequences supply the distribution of all word-initial consonant sequences without listing them in detail.[4]

Sequences of four ($C_4C_3C_2C_1$-): nskw-, nškw-, ᴅškw-, tškw-, ᴅyhw-; wtny-, whny-*, stly-, štly-, krsy-*, yšty-*, nsty-; ᴡᴅyh-; hwtš-*.

Sequences of three ($C_3C_2C_1$-): lkw-, nkw-, ykw-, ghw-; lty-, yty-, sny-, šny-, wny-, sly-, šly-*, hly-, gly-; kwh-, tyh-; kwš-, ltš-; s?n-*, š?n-*; yts-, lts-; lšk-; ᴅšg-.

Sequences of two (C_2C_1-): gy-, hy-; yn-; pš-; ᴅs-, ls-, ms-; wk-; ᴅl-, pl-; nt-, rt-; rm-; br-; sᴅ-.

The formulaic sequences above followed by an asterisk have restricted application. The formulaic sequence krsy-* ($C_4C_3C_2C_1$-) is inoperative as a formula since none of its included sequences are found in any recorded data. This irregularity may be due to the fact that the sequence occurs in a Spanish loan (krsyà *heart*) which has not been completely assimilated to the active patterns of Chatino. The formulaic sequence whny-* ($C_4C_3C_2C_1$-) is partially inoperative but not completely so; the included sequences wh- (C_4C_3-) and ny- (C_2C_1-) are found in other words. Similarly, the formulaic sequence yšty-* ($C_4C_3C_2C_1$-) is partially inoperative but not completely so, for the sequences šty- ($C_3C_2C_1$-), ty- (C_2C_1-), and št- (C_3C_2-) are found in other words. The formulaic sequence hwtš-* ($C_4C_3C_2C_1$-) is operative except for the sequence wtš-* ($C_3C_2C_1$-) which is lacking. Similarly, the formulaic sequences šly-*, š?n-*, s?n-* ($C_3C_2C_1$-) lack only one included sequence in each case: šl-*, š?-*, s?-* (C_3C_2-). There appears to be nothing in the nature of our procedure of predicting smaller sequences from the larger ones that would lead us to suspect that the missing sequences are anything other than fortuitous.

Loan words have been included in the phonemic analysis because they are used freely by monolingual speakers. Certain sequences, pš-, ms-, rt-, rm-, br-, sᴅ-, krsy- have been introduced as a result.

2.1. The consonants fall into four groups on the basis of their distribution in the formulaic sequences presented above.[5]

Group I: semivowels w, y; posterior spirants h, š; alveolars t, s, n, ᴅ; voiceless velar k.

Group II: liquids l, r.

Group III: glottal stop; ? labials p, b, ʙ.

Group IV: nasal m; voiced velars g, ɢ; dental d.

2.2. Consonants in group I occur in all positions (4, 3, 2, 1) in the formulaic sequences. All consonants in this group may be followed by one, two, or three consonants, provided that the resultant sequence (including preceding consonants) does not exceed four consonants. The semivowels and the posterior spirants may be preceded by one, two or three consonants. The alveolars t, s, n, and the voiceless velar k may be preceded by one or two consonants, but the nasalized alveolar ᴅ may be pre-

[4] The fact that larger consonant sequences include the smaller sequences may also hold true for other languages. For example, Mazateco sequences of three consonant phonemes as listed by K. L. Pike and E. V. Pike (Immediate Constituents of Mazateco Syllables, IJAL 13.78–91 [1947]) always include two-phoneme sequences found elsewhere in the language.

[5] Swadesh states (The Phonemic Structure of Proto-Zapotec, IJAL 13.220–30 [1947]) that Chatino has only one type of obstruent. His statement is based upon material taken from the Panixtlahuaca dialect as presented by Jaime de Angulo and L. S. Freeman, the Zapotekan Linguistic Group, IJAL 8.113–20 (1934). I have not been able to check the Panixtlahuaca dialect as yet, but my data indicate more than one series in the Yaitepec dialect.

ceded by no more than one consonant; and in position 2 no consonant may precede it.

Consonants in group II occur in positions 3, 2, 1 of the formulaic sequences. Liquid l may be preceded by one or two consonants, and/or followed by one or two consonants with the maximum of three in a sequence. In positions 2 or 1, liquid r is either preceded by one consonant or followed by one consonant, but in position 3 (in the Spanish loan krsyà *heart*) r is preceded by one consonant and followed by two.

Consonants in group III occur only in position 2. Of these, glottal stop may be preceded by one consonant and/or followed by one with a maximum of three consonants in a sequence. The labials are never preceded by any other consonant, but may be followed by one consonant.

Consonants in group IV occur in the following distributions: nasal m occurs in positions 2 and 1, and is either preceded by one consonant, or followed by one; voiced velar ɢ occurs in positions 3 and 2 and is never preceded by any other consonant, but may be followed by one or two; voiced velar g occurs only in position one, and is preceded by one or two consonants; voiced dental d never occurs in initial consonant sequences.

2.3. There are four types of sequences of phonetic consonants in Chatino which might be interpreted[6] either as sequences of phonemes or as phonemic units. The first two types we interpret as sequences and the second two as units. These types are as follows: (1) t followed by the spirants s or š, (2) certain consonants followed by the semivowels w or y, (3) the posterior spirant š which conceivably might be phonemically s plus y, and (4) the nasalized stops ʙ, ᴅ, ɢ, composed of the phonetic sequences [mb, nd, ŋg].

The case for interpreting ts and tš as sequences of phonemes is based upon three types of evidence: parallel sequences of consonants, reverse sequences of consonants, and the distribution of the individual segments in phonetic sequences of three or more segments. Sequences with s or š as the second member, paralleling ts and tš, are ns, ls, ms; nš, lš, pš, wš. Sequences with s or š as the first member showing the reverse order are st, sn, sl; št, šn, šl. It should be noted further that t, s, and š occur in any of the four possible positions in sequences, having distributions independent from each other in that s and š may occur in sequences in which t does not occur and t may occur in sequences in which s or š do not occur.

The case for interpreting sequences of consonant plus w or y as two phonemes is much the same. Sequences with w or y as the second member are kw, hw, ɢw; ky, ty, hy, ɢy, ᴅy, ny, ly. Sequences with w or y as the first member are wk, wh, wᴅ, wt, wn, wš; yk, yt, yh, yn. Again, we find that w and y may occur in any of the four possible positions in sequences with any one of a number of consonants. The large number of consonants with which both w and y occur make it unlikely that all such sequences would be phonemic units.

On the other hand, š, which might conceivably be phonemically s plus y, always acts as a single unit. This is first seen in the phonemic contrast of š with sy introduced into Chatino by the loan word krsyà *heart* which is in normal colloquial use by monolingual speakers of Chatino. It will be noted that in this loan, y occurs in the same relative position as it does in other sequences (e.g. styl-, nsty-), and so in this word sy has a distribution paralleled by patterns found elsewhere in the language. However, if š were decomposed into s plus y, it would then have a unique distribution with no parallels to support it. For example, we find that in the following sequences, š occurs preceded by one consonant and followed by two: ᴅškw-, tškw-, nškw-, yšty-. In no other case do we find a sequence of a consonant plus y in similar circumstances. Further

[6] Cf. K. L. Pike, Phonemics (Ann Arbor: University of Michigan Press, 1947), pp. 128-58 for interpretation procedures.

evidence is found in the sequences šk-, škw-, šn-, šny-, š?-, š?n-, šly-, in which š is followed by one or two consonants. Sequences of a consonant plus y do not usually so occur.[7] Thus we conclude on the basis of contrast between š and sy, and the distribution of š in sequences of phonemes, that š is a single phoneme.

The case for interpreting the nasalized stops B, D, G as unit phonemes is based on their distribution in larger sequences.[8] Having discovered that in Chatino any set of contiguous consonants included in a larger sequence is usually found in shorter sequences elsewhere in the language, we would expect to find such sequences as *dyhw-, *dyh-, *dy-; or *dšg-, *dš- from the sequences [ndyhw-] and [ndšg-]. This however, is not the case. In no instance do we find the stop acting independently of the nasal; rather the two function as a unit. A further argument is that a phonemic sequence like ndyhw- would be a unique $C_5C_4C_3C_2C_1$- sequence which has no parallel elsewhere in the language. Therefore we conclude that the nasalized stops B, D, G are unit phonemes.

2.4. All consonants except w, ?, g, d occur word initially before vowels: yi?o *he drinks*, ho?ó *healer*, šį *candy*, tu? *cough*, si? *belt*, ne? *people*, DĀ *giving*, li?ya *carry*, rò *rice*, kilà *male*, pàtrù?į̄ *boss*, bī? *person*, BĪlyí *comadre*, mùlyà *mule*.

All consonants except B occur word medially between vowels: skuwē *egg*, šīyá? *another time*, kahà *find*, kĭšī? *underbrush*, Gitē?tį́ *I am hungry*, kisį̄? *mad*, kina?ǫ *very much*, kàDùwà *canoe*, kīló *his eye*, Bare *compadre* (spoken about), tĭkį́ *I burn*, Di?ī *there are*, *sàpàtù shoe*, nàbĭlyù *bull*, similū *hat*, nègà *fanega*, kwĭtšicatsę *tiger*, Gudo?ō *he left*.

The only consonant found word finally is ?: ki? *fire*.

2.5. Of group I consonants, the semivowels w and y have voiceless allophones preceding or following voiceless consonants, voiced allophones elsewhere: wká? *box*, kwĭtū *chicken*, ytę̄ *entered*, tyų *you stop*; wnǭ ti *hidden*, ynī *neck*. Sibilants s and š have voiced allophones following the nasalized stop D, voiceless allophones elsewhere: Dsu?wi *it is*, Dška *healed*; tsu?wē *good*, tška *heal*. Nasal n has a velar allophone preceding k, alveolar allophone elsewhere: nkwa *made*; ntę̄ *people*. Other group I consonants, h, t, D, have no positionally variant allophones: haDša? *because*, ti *ten*, DĒ *here*.

Of group II consonants, liquid l has a voiceless allophone preceding voiceless stops, voiced elsewhere: lka *is*; tlya *early*. Flap r has a voiceless allophone word initially or preceding voiceless consonants, voiced allophone elsewhere: rìntšù *ranch*, krsyà *heart*; bra *now*. Voiceless velar stop k has no positionally variant allophones: kuní *ask*.

Group III consonants ?, p, b, B have no positionally variant allophones: ku?nī *makes*, pi *gringo*, bī? *person*, Ba compadre.

Of group IV consonants, g has a stop allophone when final in a consonant sequence, fricative allophone elsewhere: Dšga *all*; nègà *fanega*. Other group IV consonants, m, G, d, have no positionally variant allophones: msū *servant*, GĪlā *came*, Gudiyā *arrived*.

3. Chatino has five oral vowels and four nasalized vowels.

3.1. The oral vowels consist of the high front vowel i, the high back vowel u, the mid front vowel e, the mid back vowel o, and the low central vowel a. Examples: kĭtsl? *bury*, kū *he eats*, ste? *clothes*, lō *point*, sla *his sleep*.

A peculiarity of the Yaitepec dialect

[7] The only such sequences found are Dyhw- and WDyh.

[8] Note also the contrasts between the nasalized stop series, the voiceless stop series, and the voiced fricative series: Ba *compadre*, DĀ *you gave*, kàDùwà *canoe*, GO? *suds*, kwĭtšicatsę *tiger*; pi *gringo*, tā *you give*, kĭta *cigarette*, ki? *fire*, tĭke? *hot*; bi? *person*, Gudo?ō *he left*, Dšga *all*, nègà *fanega*.

(contrasting with dialects of Juquila, Zacatepec, and possibly Panixtlahuaca) is the occurrence of voiceless allophones[9] of the high vowels i and u. These voiceless allophones occur only when preceded by a voiceless stop or a sequence of voiceless consonants (or of voiceless allophones of consonants) of which the first member is a stop, and followed by any other voiceless consonant except glottal stop. Examples are kĭšį̈?[10] *underbrush*, kĭta *cigarette*, kwĭtū *chicken*, kŭsi? *hang*, kŭtā *he will give*, tŭkwa *come*.

3.2. Three of the oral vowels, i, u, e, have nasalized counterparts į, ų, ę: kĭtsí? *bury myself*, kú *I eat*, stę *he enters*. The fourth nasalized vowel ǫ[ǫ] appears to be a counterpart for either of the other two[11] oral vowels a and o, and has the phonetic character of a low back nasalized vowel: slǭ *my sleep*, kutǭ *I will give*.

3.3. Any oral or nasalized vowel may occur word medially: stityá *his padrino*, ?nįre *making*; kulò *he will take away*, tšų?wǫ *your* (pl) *back*; tehe? *salt*, tnęwǫ *your* (pl) *blood*; tyō?ó *you leave*, ka?yǫ *I am able*, ganǫ?ba *we win*. Any oral or nasalized vowel may occur word finally: nstyi *smile*, wnyi *tricked*; nsu *place*, ku?ų I *drink*; tĭyé *stomach*, nškwę *answered*; hlyo ti? *he knows*, wtnyǫ *he made*; stlya *dough*.

3.4. Vowel sequences occur only word finally, and are never longer than two vowels. In attested vowel sequences, the second member is limited to ǫ and a;[12] the first member may be any vowel. The following examples are illustrative of the many vowel sequences which are found: lkwíǭ *thing boils*, kū?nīǭ *we will do*, nyō?ǫ̀ǫ̀ *we see*, stęa *enter* (doubt expressed), no?ǫa *house* (end of question).

4. Chatino has four phonemes of tone register: high /ˊ/, mid-high /¯/, mid-low (unmarked), and low /ˋ/. Voiceless allophones of i and u, whose tone registers (if indeed they exist) have not been discovered, are marked with the symbol (˘), which may be tentatively defined as absence of tone. A complete analysis of tone deserves a special treatment because of its grammatical importance as well as its phonemic frequency. For this paper, however, we will only cite examples to show the presence of tone and the phonemicity of the four levels. Individual word pairs are as follows: kĭtá *you wait*, kĭtā *he waits*, kĭta *cigarette*, kĭtà *flour*; kú *I eat*, kū *I grind*, kų *sweet potato*, kù *dove*. The four tones may be illustrated successively from low to high in the following sentences: àlška nǭ? kú lo?ō snyè?. *I eat nothing with my son.* àdška tį̄? kú kunǫ́?. *I do not want to eat meat.*

[9] These voiceless variants of the high vowels are distinguished from the voiceless variants of the semivowels mainly by greater duration of articulation. Furthermore, in other dialects of Chatino, voiced variants occur in the same morphemes which in Yaitepec occur with voiceless variants. In the Yaitepec dialect certain morphemes, such as ku- *future*, contain the voiceless variant when they occur before voiceless consonants (kŭtǭ *I will give*), but the voiced variant in other positions (kule?ę *I will clean*).

[10] For the symbol (˘) on these allophones, see 4.

[11] One reason for this is found in the grammatical changes occurring from the stem (2nd person) to the first person singular. For example, the vowels i, u, e usually change to į, ų, ę with certain tone changes: bilyí *your comadre*, bilyį́ *my comadre*; lsû *your beard*, lsū *my beard*; sūwé *your chin*, sūwę̄ *my chin*. The vowel a usually changes to ǫ while the vowel o sometimes changes to ų, but other times to ǫ (along with certain tone changes in each case): sla *your sleep*, slǭ *my sleep*; ta *you give*, tǫ *I give*; kō?o *you drink*, kū?ū *I drink*; tšō?ó *you walk*, tšō?ǫ́ *I walk*.

[12] The limitation on the types of vowel sequences found is due to the fact that the sequences result from the addition of the following morphemes to stems ending in vowels: -ǭ indicating first person plural inclusive, enclitic nǭ in which n is elided, and -a indicating either a question or doubt.

DIACHRONIC NOTE ON THE CARIB CONTRIBUTION TO ISLAND CARIB

DOUGLAS TAYLOR

BRITISH WEST INDIES

1. Introduction
2. Major Morphemes
3. Minor Morphemes

1. If the Franks had given their name to what we call, instead, Germanic, as well as to a neo-Latin language, French, we should have as whimsical and confusing a situation as now exists when we wish to discuss the impact of pre-historical invaders' Carib speech on the Arawak language of the Lesser Antilles, which was known thereafter as 'Island Carib'. Nor is this due to a mistake on the part of the New World's European discoverers, such as has given us 'West Indies' and (American) 'Indian'. When, in the seventeenth century, these small islands came to be settled by the Whites, the natives called themselves and their language Kalínaku or Kalīpuna,—names which then were and still are so employed by various Carib-speaking tribes of the Guianas. These terms subsist also, as Garínagu and Garífuna, among the Black Caribs of Central America, whose forebears were deported thither from St. Vincent in 1797, and whose language is clearly an offshoot of the Island Carib women's speech of three hundred years ago, and hence of that spoken by the Lesser Antilles' pre-Carib inhabitants, the so-called Igneri.

It seems clear that the Carib-speaking invaders of these islands failed to establish their language there, except as a secondary idiom kept up by following generations for reasons of prestige; perhaps much as, by the end of the tenth century, an heir to the Duchy of Normandy had to be sent from Rouen to Bayeux in order that he might learn Norse; while before the close of the fourteenth century, most of the descendants of those Normans who had crossed the Channel in 1066 spoke English more readily than French. But in the case of the Island Caribs, there was no hereditarily privileged class to impose its standards; and the maintenance of contact with continental cousins was more arduous and hazardous for them than for the Anglo-Normans. Only the tradition of descent from a band of male conquerors and their female captives impelled generation after generation of Island Carib men to acquire an inevitably diminishing degree of bi-lingualism, traces of which are to be found today in the only surviving dialect, that spoken by the Black Caribs. But already by the middle of the seventeenth century, when the Dominican dialect was first recorded and described (by Father Raymond Breton), its phonemic and grammatical structure was essentially Arawakan; while the men's speech appears to have been little more than a sort of jargon, comparable to that employed in our own time by certain of the English Gypsies. Most of what Bloomfield had to say regarding the latter could be applied, *mutatis mutandis*, to this men's speech as it appears in Breton's work. Bloomfield (in Language, p. 471) says:

> . . . ; among themselves, however, they use anywhere from a few dozen to several hundred words of the old Gipsy language. These words are spoken with English phonemes and English inflection and syntax. They are terms for the very commonest things, and include grammatical words, such as pronouns. They are used interchangeably with the English equivalents. Older recordings show a great number of these words. . . . Occasionally one hears a Gipsy inflection, such as ['rukjr̥], plural of [ruk] 'tree'.

2. The difference between men's and women's speech as regards vocabulary, three hundred years ago and today, may be seen from the following table, which gives the

affiliation, in so far as this is known, of 197 items of basic (*i.e.*, non-cultural and relatively stable) vocabulary. Men's and women's speech are indicated by M. S. and W. S. respectively.

Ancestry	Dominica 1650		Central American 1950	
	M. S.	W. S.	M. S.	W. S.
Arawak	56	137	122	130
Carib	100	26	36	28
uncertain	39	31	32	32
Tupi	0	1	1	1
Spanish	2	2	4	4
French	0	0	1	1
Bantu	0	0	1	1

Taken at its face value, this means that intimate borrowing was mutual; that of the men from Arawak being more than double that of the women from Carib by the year 1650. However, Breton's textual and elicited material shows that many morphemes of and in the men's speech were freely interchanged with others of the women's speech, while the latter employed only such Carib morphemes as had supplanted the Arawakan equivalents; so that if absolute frequency of actual usage be taken as a criterion, the disproportion was much greater than the table shows it to have been in 1650. Moreover, while the proportion of Carib to Arawak words has not changed appreciably in the course of the past 300 years so far as the women's speech is concerned, the difference between the latter and that of the men has now become quite insignificant.

3. To anyone even vaguely acquainted with the structural differences between Arawak and Carib languages, it would seem utterly impossible to give concurrent descriptions of both. Nor has Breton attempted this; if indeed Carib was still spoken in Dominica when he lived there. Yet it is clear that he intended to describe the men's speech at least as adequately as that of the women. He speaks with evident complacence of "ceux qui auront passé le iargon des enfans, & les dialectes des femmes"; and shows a marked preference for men's forms (always listed first in the dictionaries) throughout his Carib Catechism and the introductory letter, addressed "To the Dominicans—Nhibónam Ouáitoucouboulina." In spite of which, his Grammar mentions only five minor morphemes as belonging distinctively to the men's speech. These are, in Breton's own spelling: -pa, a negative suffix contrasting with the women's negative prefix, m-, as in: arámêtoupátina v. marámêtontína, *ie ne cache pas*; chi-, a causative prefix contrasting with the women's causative suffix, -kêta, as in: chitímain lóa v. nitimainkêta lóa or courákêta lóa, *il l'a fait boire*; and three pronominal prefixes.

Breton begins by describing seven pronominal prefixes, and seven pronominal suffixes; the first employed with verbs and with nominal and preposition-like bases, the second with verbs and a few other predicators; both sets indicating three persons, two numbers, and—in the third person singular only—two genders, masculine and feminine. He then goes on to say that, with nominal and preposition-like bases of their own speech, the men replaced 1st person singular n- and 2nd person singular b- of the women's speech by i- and a- ~ e- respectively; but that both sexes used the same prefixes of the 3rd person singular, l- and t-. Examples in Breton's own spelling giving first the men's then the women's speech are: ichánum, noúcouchourou *my mother*; iéti, níri *my name*; ibónam, nóne *to or for me*; achánum, boúcouchourou *thy mother*; eyéti, bíri *thy name*; abónam, bóne *to or for thee*; lichánum, loúcouchourou *his mother*; léti, líri *his name*; libónam, lóne *to or for him*; tichánum toúcouchourou *her mother*; téti, tíri *her name*; tibónam, tóne *to or for her*.

There was likewise a difference in the 1st person plural; for whereas the women said "ouácouchili *nostre Pere*, ouácouchilium *nos Peres*: les hommes se servent d'un *k*

pour les noms, & mesme pour les verbes imperatifs . . . kioúmaan *nostre Pere*, . . . kígnoucou *nos Peres*." Similarly, kibónam was equivalent to ouáone, with the meaning *to or for us*. And in place of the women's caíman ouánhouyoura *allons nous coucher*: les hommes prennent un autre mot, & une autre lettre initialle, kíchicoulama, disent-ils. Both sexes employed the same prefixes with 2nd and 3rd persons plural; hibónam and hóne *to or for you*, nhibónam and nháune *to or for them*. By implication and according to Breton's examples, the men employed women's person-marker prefixes and suffixes in all other constructions.

These last examples include a Carib pluralizer, -ku; while the verb (not an imperative as Breton thought), kíchicoulama *nous coucher*, appears to contain, besides the person-marker ki-, Breton's causative prefix, chi-; for in the Carib-French dictionary we find nicoulámainhatina *ie suis couché*, corresponding to ouyouátina of the women's speech. In fact, apart from what has been indicated above, Breton's grammatical analysis completely ignores all minor morphemes of the men's speech. Considerably more than half the Grammar (72 out of 126 pages in the original, 42 out of 70 pages in the modern edition) is taken up with paradigms of the verb; yet not even the imperative construction belonging to the men's speech is mentioned, although entries in the dictionary show that this was known and used at least on occasion; so: háakê *viens*, háakêtêkê *venez* (Breton's *ê* represents a mid back unrounded vowel). It is moreover clear that all such Carib affixes could be replaced or supplemented by equivalent forms of the women's speech. Thus, Breton gives all the possessed forms of uhémbou *ventre* (corresponding to oulácae of the women's speech) with the women's prefixes only; while the dictionaries frequently give alternative men's forms, such as: hac kibáboukê, *ou* chibábouteba bánna, *viens m'inciser*; chibánamboui-bánna, *ou* kíbanakê *ayde moy*; in which the imperative mood is marked indifferently by the men's suffix, -kê, or by the women's auxiliary verb, ba (b-, 2nd person sg., -a-, sg. number imperative base); and the 1st person singular pronominal goal either by the men's prefix, k-, or by the women's suffix, -na. Compare also: caiman kechénêche *allons manger, allons voir*, with chénê-chétina *ie veux manger*, and enépati nóne *ie ne le vois pas, il ne paroist pas*.

There is some justification for Breton's equating the men's prefixed chi- with the women's causative suffix, -kêta, as in the example already given, and in: chicótamboui lóa *il l'a fait mourir* v. nicotamainhali *il est mort*; chiticae liátina *il m'a effrayé* v. niticae áo cayeú *ha que i'ay eu peur*; or caíman chéneboui-banũ imáboulou ibónam *viens me montrer ma route* v. nénebouiátina nhinnenériem kilománcou *i'ay vu les femmes de mes aisnez*. But this is not the whole story. It is evident that both chi- and the men's prefix n- (Breton does not mention the latter) are incompatible with either the negative suffix -pa or the imperative suffix -kê, but may occur in the same word with the women's causitive suffix -kêta. So, with the above, compare icotámêpakéili *il n'est pas encore mort*; and with chicáboui-báe *fais le*, nachicábouiroyénli *ie le fais*, compare icáboupa nometi *ie ne l'ay pas fait*, bacálla icákê *fais moy un panier*; and with chichantóntoui lóa *il l'a engendrê*, compare chichanontouíkêta nóa *ie luy ay fait avoir lignée* (voyez: ichánum *mère*). Further examples of the use and non-use of these affixes may be shown with the stem -baka-, which appears to have such various meanings as *free, calm, safe, awake, alive*; chibacáikêta *to set free*; nibácaiháli and noubácaiáli *he is saved, resuscitated, alive*; noubacaé-ba *réveille toy*, oubacákeutekeu *réveillez vous*; oubácali *réveil, resurrection*; ibácapakéili *il n'est pas encore sauvé*; ibacátobou *instrument avec lequel on s'échappe*; bacáali balánna *la mer est calm*. It may therefore be assumed that such a form as the first word of inicáboupa nometibou *ie ne*

vous ay pas fait contains, not the prefix i- followed by the prefix n- of the men's speech, but an alternant of the former, in-, employed with negative participles and with verbal nouns, as also in anicábouli (*object of*) *thy making*, inibácali (*object of*) *my saving—celuy que i'ay sauvé*, inibacátobou *ce avec quoy ie l'ay sauve*, etc.; these last examples containing also a suffix -li ∼ -lu, which occurs with many possessed nouns, and the instrumental suffix, -tobou.

Use and non-use of the prefixes s(V)- and n(V)- of the men's speech in seventeenth century Dominica have been illustrated in some variety, so as to show, at least, that they did not function as person-markers, which is what they are in the modern Carib language of the Galibi, the Guiana tribe from which the Island Caribs of Breton's day claimed descent. That there was nevertheless some similarity between the two systems in other respects may be assumed from an examination of the following table of Galibi person-markers:

Intran. VV.		Transitive VV.			NN. & prep.-like words	
		Person				
Person	Prefix	Subj.	Goal	Prefix	Person	Prefix
		1st	3rd	s(i)-		
1st pl.	k(V)-	1st pl.	3rd	kes(i)-	1st pl.	k(V)-
		1st	2nd	k(e)-		
2nd	m(V)-	2nd	3rd	m(V)-		
		2nd	1st	k(e)-		
3rd	n(V)-	3rd	3rd	n(V)-	3rd	i-, e-, or zero
		3rd	2nd	a(y)-	2nd	a(y)- or a(e)-
1st	u-, i-, or zero	3rd	1st reflxv.	u(y)- -Vt/a-	1st reflxv.	y(e)- or zero t(V)-

Although almost certainly incomplete, and possibly erroneous in some details, this list shows that the pronominal prefix, in transitive verbs, indicates goal as well as subject. Suffixes, in Galibi, show tense, mood, negation, plurality, causation, instrumentality, etc., but do not mark person for either subject or goal. Nor do prefixes show number except for the k- of first person plural,—which may, perhaps, be rather a dual. It is hardly conceivable that this pattern should have evolved—though it may have changed somewhat—during the past three hundred years; and it therefore seems reasonable to assume a gradual decay of the Carib verb-system among the Island Carib, made good, as need arose, by the adoption from the women's language of various affixes and, especially, of the auxiliary verbs, which, when placed after an infinitive verb or an adjective, can mark tense, aspect, mood, as well as pronominal subject and goal,—not to mention the un-Carib concept of gender, which made possible such apparently welcome sequences as: 'he said to her' and 'she said to him'.

If this assumption be correct, it is easy to see how certain Carib affixes were maintained, as alternatives, either with their old meanings, as in the case of the suffixes -tobu (instrumental), -kê (imperative), etc., and the pronominal prefixes i- *my/me*, a- ∼ e- *thy/thee*, k- *our/us/we*; or with a new significance, as in the case of n(V)- and s(i)-; while still others were lost or petrified. Even in 1650, such forms as mábouica *bonjour, salut*, and caíman *allons*, apparently were unanalysable; although the first certainly contains the person-marker of second person singular, m-, and the interrogative suffix, -ka, together with the stem -abui- *come*, and the primary meaning, *art thou come*, which is moreover the meaning of the women's equivalent greeting, chileátibou? *es tu venue: c'est le bonjour que les femmes se donnent, . . .*; while the second appears to contain the first person plural or dual prefix k-. Similarly, Breton's nekay, which functioned and still functions as a quotative particle, *it is said, he says, they say*, etc., probably consists of the Carib third person prefix, n-, together with the same stem as is seen in: icáli *renom*; chicálêtê-ba lóne *parle luy*; icápati loária *on ne parle pas de luy*.

The modern forms of these words, mábuiga, káimą, nége, are of course monomorphemic; as are also the men's words, iúdi *my portion of meat*, and iágu *my drink*

(iuáku in recent Dominican, and Breton's iouácoulou), which were still analysable in Breton's time, but today must be replaced by the more exoteric women's words, b-úi *thy meat*, l-úi *his meat*, etc., when other possessors have to be indicated. So far as I know, the old prefix s- subsists only in petrified form, as in subúdi-t-i nų *he is known to me—I know him*, (Breton's chouboútoui), with which compare ibídiẹ-t-i nų *he is unknown to me—I don't know him*, (Breton's iboutípfeti and ouboutípfeti); both words being, except for the endings, -t-i, quite unanalysable. On the other hand, traces of the prefix n- are to be found in some adjectives whose nominal counterparts lack it; so, ibúsigari, or ubúsigari *shame*, but nibúsigai *ashamed*; and ibágari *life* (note the change of meaning from Breton's *awakening* or *freeing*), but nibágai *alive*. One hesitates to speak of derivation here, since this type is today quite unproductive, and instances of it extremely few;—in fact, I know of no others besides those just cited. The only affixes of Carib ancestry that are alive and productive in this one surviving dialect of Island Carib are the collectivizer, -gu, a restrictive, -rogo (*only*), and one or two locative suffixes.

It may be that some forms of the men's speech were better retained, because of historical reasons, in Dominica than in St. Vincent. One of the few "old-time" expressions still current among the present-day (Creole-speaking) Indians there is: ála kuábutu *I want a drink*, or *let's have a drink*, neither form nor given meaning having changed since Breton listed it in his dictionary three hundred years ago. The first word expresses desire for something or to do something, and may be called a hortative particle. The second is to be analysed as: k- *us* (see above), -uabu- *in front of*, -tu, causative form of -ta *set out*. All four morphemes are Carib; and the phrase appears to have as its literal translation: *would-that* (*something*) *be-set-before-us*; which may still have been clear to the last native speakers of Dominican, some forty years ago.

Before concluding, I will cite and describe two fairly long utterances recorded by Breton, which appear to have been spontaneous, not elicited. The first, probably but not necessarily made by a woman, is as follows: "Acai niráheu hámouca macótoni lahámoucae ouáttou, ácae maráheu hamouca, cao lahámoucae nhála *s'il est mon fils le feu ne le brulera pas, s'il ne l'est pas, ma chaire le dévorera.*" Morpheme division is perfectly clear, and is as follows: aka-i *if he*, n-iráhø *my child*, hámuka *should be*, ma-kut (a)-uni *not burn-ing* (*participial suffix*), l-a-hámuka-i *it be* (*conjunctive*) *would him*, uátu *fire*, áka-i *if he*, ma-ráhø *not child*, hámuka *should be*, kau *eating*, l-a-hamuka-i *it be* (*conjunctive*) *would him*, n-hála *my seat*. There is only one Carib morpheme in the utterance, uátu *fire*; this having completely replaced the Arawak word by Breton's time, except in the sense of firing a gun. The second utterance was necessarily made by a man, since the word translated *marry* means literally *take woman*. Breton writes and translates it as follows: "alaioueletetínlam, ibouikênoumapaoua áolam ichanum múnlam michígatou catou niránnium aléiba nóne *I'ay envie de me marier, on n'a point de soing de moy, par ce que ie n'ay plus de mere, ma belle soeur ne me presente pas seulement de la Cassave.*" Morphologically, this word division is faulty; and for greater clarity in description may be amended to: ála iuéleteti-lą; ibuíkønumápa-uą; áu-lą isànumú-lą misíkatu kátu niránių aléiba núne. The first word has been explained in the preceding paragraph; the second consists of a possessed noun, i-uéle-te *my woman*, a verbalizing suffix, -tį. The three lam enclitics are expletive, and give to the utterance an exclamatory character. The next word contains the verb-stem ibuíkønuma *take care of*, whose root is buík *upon or about*, and the negative suffix -pa; and is followed by enclitic ua

I am or I have, (u- being a pronominal prefix of the 1st person singular). Au, with its enclitic lam, is a disjunctive pronoun, (*as for*) *me*, or (*it is*) *I*; and is followed by i-sánų *my mother*, to which privative -mų *without* is suffixed. So far, every morpheme is Carib. The next word is a negative (or privative) aorist verb of the women's speech—i.e., Arawak: m-, privative prefix; isika *bring or give*; -t, aorist aspect-marker; -u, feminine person-marker of the 3rd person singular; *she does not give*. Kátu is a Carib assertive particle; n-iránių *my brother's wife*, belongs to the women's speech, as does the utterance-final n-úne *to me*; while aléiba *cassava-bread* is Carib. The *par ce que* of Breton's French is not expressed by the text, a closer translation of which would be: *I want to get married*; *I'm not looked after*; *here I am without a mother*, (*and*) *my sister-in-law doesn't* (*even*) *pass me cassava-bread*. I am not competent to say whether or not the first part of this utterance is or is not good Carib; but were it made today in English, with *ma belle soeur ne me donne pas even du bread* substituted for the last clause, one might be justified in concluding that the speaker had an imperfect control of English.

There can be no doubt that among the Island Caribs' male descendants, from Breton's day to this, Carib speech forms have always carried greater prestige than those which constitute in every sense their mother tongue. It is obvious that the Carib invaders' Sprachpolitik failed to eradicate the native language of the conquered islands; and the perpetuation of a second and, on the whole, useless language is always and everywhere a hopeless task. The wonder is that so much of it endured so long; for it is clear that Carib was never more than a second language even to the first generation born of Arawak-speaking mothers and Carib-speaking fathers. By Breton's time it had degenerated to what may be called a jargon in the sense that it could not be used for ordinary communication without resort to a host of minor morphemes belonging to the speakers' first language—that of their mothers and sisters, who, we are told, might speak it to them until they became old enough to accompany their fathers. Breton was therefore right in believing that he was dealing with two dialects of one language, "le langage des hommes" and "le langage des femmes"; but he was mistaken (or else just tactful) in calling it "la langue Caraïbe."

EXAMPLES OF TONE IN CROW

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0. Introduction
1. Two syllable words
2. Three syllable words

0. Although a Crow grammar has been previously published by Lowie,[1] the tone system of this language had not been investigated. The following work was done at the 1953 Linguistic Institute at Indiana University; the tone problems were discussed in the Field Methods course of that Institute, and were further clarified by the phonetic teaching of H. J. Uldall, and the methodological procedures of C. F. Voegelin and Harry Hoijer.

There are two consonant series in Crow, a fortis and lenis. The fortis series is in this paper indicated orthographically by consonant clusters as pp, tt, and so on. The lenis consonants are designated by single letters. They are often voiced, initially and intervocalically, as well as unvoiced in these positions; they are always voiceless in utterance final. The bilabial, dental and velar lenis stops are often palatalized before and after high front vowels. The lenis consonants are p, t, č, h, w, k, x, s, š, m, n, r. Consonants in the fortis series are never voiced; they are held longer than lenis ones and end with a slight aspiration. The fortis consonants are written pp, tt, kk, čč, ss, šš, xx, mm, nn, rr.

Vowel phonemes are still uncertainly analyzed. A symmetrical contrast appears between short a, i, o, u and long a·, i·, o·, u·, but the relationship of ɛ, ə, and [e·] (perhaps/ɛi/) is uncertain.

The examples which follow show an approach to exhausting tone possibilities of two syllable and three syllable words in terms of three tonemes: HIGH, LOW, and FALLING (plus stress or no stress). The last (falling tone) is restricted to long vowels; high tone is associated with both short and long vowels; so also, low tone is associated with both vowel lengths.

Stress is correlated with tone—but only in part. At this point in our phonemicization, we still write stress as an independent variable. High tone is marked by an acute accent [ˊ]. Low tone is marked by an absence of diacritic. Falling tone is marked by a grave accent [ˋ]. Stress is indicated by a mark preceding the vowel which appears in type not quite as vertical as it was intended to be. The stress diacritic precedes the vowel; the tone diacritics are over the vowel.

1. With two syllables, the following possibilities occur: high + high, high + low, high + fall; low + low, low + high, low + fall; fall + high, fall + low, fall + fall.

Of the first set of possibilities (high + high, high + low, and high + fall) only high + high and high + low are found in our material. The high + high syllables consist of long vowel plus short vowel, each stressed; but the long vowel carries the significant stress. Thus, *'ís'á his face*, x'á·w'ík *its bushy*, *'í·ky'á his elder brother* p'ú·'á *fish*, p'í·'á *rock*, m'á·p'á *day*, š'ó·p'á *four*, h'ú·p'á *shoes*. The following examples of high + low are divided into two groups according to the vowel length of the initial syllable. The high tone may be associated with a long stressed vowel: č'é·ta *wolf*, p'í·ru *we*, t'í·ru *you all*. The high tone may also be associated with a short stressed vowel: m'ála *money*, *'íšša container*, t'áhpa

[1] Robert H. Lowie, The Crow Language: Grammatical Sketch and Analyzed Text, UCPAAE 39(1).1-142 (1941).

your ear, h'íšša *red*, t'íča *your feet*, x'áxa *stripes*.

Of the second set of possibilities (low + low, low + high, low + fall), only low + high and low + fall are found in our materials. In the sequence of low + high (shown in the following examples) both vowels are short, and stress is associated with the high tone. iz'á *his arrow*, pišky'á *dog*, pir'á *water*, piš'á *blanket*, mal'á *tree, wood, stick*, ihky'á *egg, star*, aš'á *lodge*, ak'á *trigger*, ap'á *his nose*, mahp'á *my ear*, thašš'á *grease*, hur'á *bone*, mač'á *my foot, man*, išt'á *his eyes*, hup'á *hole*, pašš'ík *he falls*. The falling tone is associated with a long stressed vowel. ihky'à· *my mother* (*Voc.*), puxx'à· *beer*, is'à· *big*, pišky'à· *sap*, čir'à· *her husband*, pir'à· *fire*, piš'à· *buffalo*, xaw'ì·k *its bad*, mah'à· *springs*, thar'à· *gas*, axx'à· *my father* (*male voice, Voc.*).

Of the three possible occurences of initial fall (fall + low, fall + high, fall + fall) only examples of fall + low are found: The initial syllable has a long stressed vowel, and the low tone occurs with a short vowel. p'ì·a *woman*, č'ù·ssa *half*, č'ì·sa *his tail*, č'ù·sa *half dollar*, 'ì·ra *blood*, m'à·rra *winter, my arm*, x'à·pik *its flat*, 'ì·hkya *his chin*, 'ù·xa *deer*, 'ù·ka *white clay*, t'ù·ra *his back*.

Stress would not need to have been written as an independent variable in this set of examples since it correlates with high tone and falling tone. So also in the case of three syllable words (see below), stress would not need to have been written. But the stress-tone correlation in Crow is not predictable in morphemically complex words of more than three syllables.

2. Of the 24 tone combination possibilities which occur with three syllables, only 12 are actually found in our sample. Initial low tone occurs in six combinations with low, high and falling. Initial high tone occurs in five combinations with high, low and falling. Initial falling tone occurs in only one combination (i.e., when followed by two low tone syllables).

Low + low + fall is associated with initial and medial short vowel syllables, and with long stressed final vowel. mašpir'à· *my fire*, awaš'à· *Hidatsa*, mirišš'à· *corpse*. The sequences of low + low + high may end in either a short or a long vowel. In either case the high tone is associated with the stress. The following examples found in our materials show both vowel lengths in the final syllables. piričky'á *pond*, masahp'à *my shoes*, minnaxč'á *fence*, iškiw'á *inside*, awuš'á *hole*, mapašky'úk *I cut it*; awat'á· *far*, isak'á· *her mother*, mahčir'á· *my husband*.

The combinations of low + fall + low as well as those of low + high + low are stressed on the mediai syllable (on the falling and high tone syllables). The falling tone occurs exclusively with long vowels. Thus, tar'à·ka *your child*, pir'à·kša *match*, išš'ì·pa *his own intestines*, mas'à·ka *my father*, (*female voice*), tak'à·ka *bird*, aššt'à·rra *tipi*, mašp'à·šo *my feather*, tis'à·rra *your elder brother* (*female voice*), ap'à·ka *mosquito*. The high tone is associated with a long or a short vowel which carries the stress of the word. mar'é·šša *suitcase*, ahk'á·šik *many*; ašš'írək *tents and tipis*, aw'áxpak *I marry him*, ar'áxpak, *you marry him*, aw'áxa *you bend down*, mišx'áxa *striped blanket*.

Two combinations of initial low (low + high + fall and low + high + high) have two stressed syllables. The initial syllable is always a short unstressed vowel while the final syllable is a long stressed vowel. In low + high + fall, the medial syllable is stressed whether short or long. pur'úx'à· *ice*, čič'áx'à· *circle*; hir'é·tt'à· *over here*, mač'ú·k'à· *my younger brother* (*Voc.*), mas'ó·k'à· *my younger sister* (*Voc.*), mas'á·k'à· *my father* (*female voice, Voc.*), hir'á·k'à· *now*, mač'é·s'à· *big man*. The medial syllable in sequence low + high + high is always a long stressed vowel. marr'á·k'á· *my child*, ašš'ó·x'á· *pancreas*, ahp'á·x'á· *cloud*, mas'ó·k'á· *my younger sister* (*female voice*), mas'á·rr'á· *my elder*

brother (female voice), mas'á·š'á· *my blanket*, mač'ú·k'á· *my younger brother (female voice)*.

Initial high tone occurs in five sets followed by low, high or falling tone. (The initial low tone was easier to distinguish than the initial high over a short vowel. Short vowels with a high tone seemed to occupy a more or less mid position between low and high; on the other hand, vowels with high tones seemed to occupy the highest level of the register.)

The sequence high + low + low is heard with one stressed syllable, namely the initial syllable. Both short and long vowel lengths are found in the initial and medial syllables. The final syllable (low tone) ends in a short vowel. t'íšpira *your fire*, t'íščira *your husband's brother, your sister's husband*, t'íšpača *your brother (female voice)*, n'áhčimmik *you count it*, t'ápaškyuk *you cut it*; t'íspa·šo *your feather*, t'íškya·ra *your mother-in-law (female voice)*; č'é·tpača *Japanese*.

Two sets (high + high + low; high + fall + low) have a pair of stressed syllables in each set—the high tone syllables in the first, and the high and falling tone syllables in the second. A single example of high + high + low was found in our materials, p'ú·x'áxa *trout*. In high + fall + low, the falling tone always occurs with a long stressed vowel. The high tone of the initial syllable may occur with either vowel lengths. The initial high tone syllable is associated with stress. m'á·k'à·rak *I blow it*, 'í·s'à·kša *young man*, t'í·š'ì·pa *your own intestines*, p'í·š'ì·pa *my own intestines*, m'á·k'à·ta *child*, t'á·č'è·ta *sometimes*; m'áčč'à·čik *its a good one*.

All syllables are equall stressed in such sequences as high + high + fall and high + high + high. The initial and final syllables in all our examples of high + high + fall have long stressed vowels; the medial syllable may have either a long or short vowel. Thus, m'á·r'é·t'à· *no*; m'á·pt'áčč'à· *everyday*. The initial syllable of all sets showing high + high + high have long vowel; the medial and final syllables have short vowel. t'í·p'ášš'ík *you fall*, p'í·p'ášš'ík *I fall*, m'á·x'áw'áh *bread*, p'í·h'úr'á *my own bones*, m'á·s'áxp'á *noise*.

Initial falling tone occurs in three syllable words only when followed by two low tone syllables. The medial low tone occurs with both vowel lengths, and stress falls on the initial syllable only. t'ù·šira *elk tooth dress*, 'ò·ččirək *tonight*, 'ù·wata *iron*, 'à·hkapa *freeze*; 'ì·ra·ra *car*, 'ì·pu·xa *rattles*.

MATLAPA NAHUATL III: MORPHEME ARRANGEMENTS[1]

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0. Introductory
1. Development and distribution of stems
2. Distribution of prefixes
3. Distribution of suffixes

0. We group Nahuatl words into three categories: nouns, verbs, and particles. Words of each category contain a word core, consisting of one or more morphemes, which we designate as a stem: noun stem (N); verb stems—intransitive (I), transitive (T), benefactive (B); particle stem (P) Some I and all P occur respectively as I and P. N, T, B, and other I occur only in sequence with one or more affixes (prefixes and suffixes).

1. Stems contain at least one base. Stems N, V, and P may consist of a single base or a series of bases. Stems N and V may also consist of one or more bases in sequence with one or more stem-forming affixes. Thus, in some cases, stems are equal to bases; in others, stems may be considered extended bases.

1.1. Verb stems (I, T, B) may consist of a base alone: intransitive base (IB), transitive base (TB), or benefactive base (BB) respectively. They may also consist of bases IB, TB, and noun bases (NB) in sequence with stem-forming suffixes. Suffixes 111–131 are found in such sequences.

The observed formations are shown by formulas in the following three subsections.

1.1.1. Intransitive stems.

IB = I: čo·ka·h *they are crying* [I = (IB), 191]; tičolo·hke·h *we escaped* [I = (IB), 186, 191].

NB_1, 111 = I: šokʷeti *he limps* [I = (NB_1, 111)]; niλa·katih *I was born* [11, I = (NB_1, 111), 186]. (NB_2 in sequence with suffix 111 yields T, see **1.1.2**).

NB, IB = I: telpokamihki *he died young* [I = (NB, IB), 186]; niλamiyaya·wia *I become completely black* [11, I = (NB, IB), 161].

Some I occur in sequence I; other I in sequences of the following types: ± prefixes, I, ± suffixes. Examples: koči *she is sleeping* (I); tionpahpaλa·nki *you went to fly repeatedly* (12, 42, 71, I, 186); tiwectinemi·h *we go along falling* (12, I, 141, 154, 191); pi·nawaya·h *they were ashamed* (I, 185, 191); wa·lλaciwi *he comes to be lazy* (41, I).

1.1.2. Transitive stems.

TB = T: nikitas *I will see you* [11, 32, T = (TB), 187]; šiki·nčia *wait for them!* [14, 35, T = (TB)].

NB_2, 111 = T: moyoyontia *he gets dressed* [61, T = (NB_2, 111), 161]; ne·čpahtihke·h *they cured me* [21, T = (NB_2, 111), 186, 191]. (NB_1 in sequence with suffix 111 yields I, see **1.1.1**).

IB, 120 = T: nihweckilia *I make fun of him* [11, 32, T = (IB, 121), 161]; ne·čne·štihtiki·saya *he was going forth to find me* [21, T = (IB, 122), 141, 155, 185]; tiki·nλehkoltihtiwa·lahtoya *you had been making them come climb* [12, 35, T = (IB, 123), 141, 152, 171, 185].

NB_1, 111, 121 = T: kiλa·katilih *she gave birth to him* [32, T = (NB_1, 111, 121), 186]; nimicšokʷetili·s *I will lame you* [11, 31, T = (NB_1, 111, 121), 187].

NB, TB = T: te·čkalči·htoya·h *they had been making us a house* [33, T = (NB, TB), 171, 185, 191]; nika·pipina *I take water from it* [11, 32, T = (NB, TB)]; timokʷato·člokocowa·h *we huddle up* [12, 61, T = (NB, TB), 161, 191].

Certain T can occur as the ultimate con-

[1] For Parts I and II of this series see IJAL 17.32–36 (1951) and 19. 274–280 (1953).

stituent of a verb complex only in sequence with prefix 14. These T plus suffix 161 parallel other T in word final or in sequence immediately before suffix 185 and/or 191: nihši·ma *I cut his hair* (11, 32, T), nikoli·nia *I move it* (11, 32, T, 161); ki·nkʷapaya *he returned them* (35, T, 185), ki·nλahpalowaya *we greeted them* (35, T, 161, 185); ne·čλana·na·h *they raised me* (21, T, 191), ne·čλankečia·h *they bite me* (21, T, 161, 191); kiλapa·naya·h *they were breaking it* (32, T, 185, 191), kiλapowaya·h *they were opening it* (32, T, 161, 185, 191). Elsewhere, all T are distributed alike. For economy of statement, we cite T, 161 simply as T in our formulas listing possible occurrences.

Minimum sequences for T are 12, T; 30, T; 60, T: ne·čno·ca *she calls me* (21, T); kinaɱaka *he is selling it* (32, T); λakʷa *he is eating something* (63, T). In a few cases 30 and 60 may be replaced by NB: paɴihnekʷi *she smells bread*; lala·škowa *he buys oranges*. Elaborations of these sequences are of the following types: ± 10, 30, ± 40, ± 71, T, ± suffixes; 21, ± 40, ± 71, T, ± suffixes; ± 10, ± 40, 60, ± 71, T, ± suffixes. Examples: tihwa·lmahmačtia·h *we come to teach him* (12, 32, 41, 71, T, 161, 191); ki·npahpa·cka *he milks them* (35, 71, T); ne·ččihči·šte·hki *he waited for me repeatedly before going away* (21, 71, T, 141, 156, 186); ne·čwa·lpa·tiltia·h *they come to get rid of me* (21, 42, T, 161, 191); šioɴλahkʷilo *go write something*! (14, 41, 63, T); mokʷaptos *she will be returning* (61, T, 171, 187).

1.1.3. Benefactive stems.

BB = B: tihmakak *you gave it to me* [12, 32, B = (BB), 186].

TB, 131 = B: ne·čkowilia *she buys it for me* [21, B = (TB, 131), 161]; šiki·mela·wili *find them for him*! [14, 35, B = (TB, 131)].

NB_2, 111, 131 = B: aɴkiyoyoɴtilihtose·h *you (pl.) will be dressing him for her* [13, 32, B = (NB_2, 111, 131), 171, 187, 191].

IB, 121 or 122, 131 = B: kimačtilih *he taught it to her* [32, B = (IB, 121, 131), 186]; ne·čne·štilia·h *they show it to me* [21, B = (IB, 122, 131), 161, 191].

The distribution of B is similar to the distribution of T in that most B can occur in word final only in sequence with prefix 14. These B plus suffix 161 parallel other B in sequence immediately before suffix 185 and/or 191. All B are distributed alike elsewhere. We cite B, 161 simply as B in our formulas listing possible occurrences.

Minimum sequences for B are 21, B; 30, B: ne·čišλawa *he pays me for it* (21, B); ki·maka *he gives it to them* (35, B). Elaborations of these sequences are of the following types: 21, ± 40, ± 71, B, ± suffixes; ± 10, 30, ± 40, ± 71, B, ± suffixes. Examples: ne·čoɴpi·kilia·h *they go to wrap it for me* (21, 42, B, 161, 191); nè·čwi·kilihte·hke·h *they carried it away for me before leaving* (21, B, 141, 156, 186, 191); te·čwa·li·kilikaɴ *bring it to me*! (pl. command) (14, 33, B, 191); aɴkioɴpowiliaya·h *you (pl.) were going to read it for him* (13, 32, 42, B, 161, 185, 191); ki·nči·wilihtoya *she was making it for them* (35, B, 171, 185); tihki·štilihtiyahtoya·h *we were going to take it away for him* (12, 32, B, 141, 151, 171, 188, 191).

1.2. Noun stems (N) may consist of a base alone (NB). They may also consist of bases IB, TB, and NB in sequence with stem-forming prefixes and suffixes. Prefixes 60, 71, suffixes 111–131 and 210–220 are found in such sequences.

The observed formations are shown by formulas in the following two subsections. We set up two classes of noun stems which differ in their distribution with affixes. One class consists of derived stems, the ultimate constituents of which are suffixes 210; the other class consists of all others.

1.2.1. Noun stems, class 1 (N_1).

NB = N_1: teskaλ *mirror* [N_1 = (NB), 241]; noλaɴ *under me* [51, N_1 = (NB)].

NB, NB = N_1: tekikalli *work house* [N_1 = (NB, NB), 241]; moo·waiswawaɴ *your straws* [52, N_1 = (NB, NB), 242].

NB, NB, NB = N_1: λaltepokmeN *gusts of dust* [N_1 = (NB, NB, NB), 242]; piconakamolli *mole made with pork* [N_1 = (NB, NB, NB), 241].

± 71, IB, 220 = N_1: tomatka·waN *our wise ones* [54, N_1 = (IB, 221), 242]; ini·NkokoliS *their illness* [56, N_1 = (IB, 223)]; ahasikayo·meN *continuous arrivals* [N_1 = (71, IB, 224), 242].

60, ± 71, IB, 120, 220 = N_1: λatemowihke·meN *lowerers* [N_1 = (63, IB, 121, 221), 242]; λaλehko·ltihke·ciciN *little lifters* [N_1 = (63, IB, 123, 221), 242, 251]; λawehweciltilli *something made to fall a number of times* [N_1 = (63, 71, IB, 123, 222), 241]; imomiktilis *his suicide* [53, N_1 = (61, IB, 122, 223)]; te·asi·ltilismeN *forced arrivals* [N_1 = (62, IB, 123, 223), 242]; te·čo·kilihkayo·λ *weeping* [N_1 = (62, IB, 121, 224), 241].

60, ± 71, IB, 122, 131, 222 = N_1: λane·štililli *what was taught* [N_1 = (63, IB, 122, 131, 222), 241].

NB_1, 111, 221 or 223 = N_1: tekitike·λ *worker* [N_1 = (NB_1, 111, 221), 241]; tekitilisλi *work* [N_1 = (NB_1, 111, 223), 241].

60, NB_2, 111, 220 = N_1: ite·pahtihka·h *his healer* [53, N_1 = (62, NB_2, 111, 221)]; te·na·miktihkayo·λ *marriage* [N_1 = (62, NB_2, 111, 224), 241].

60, ± 71, TB, 220 = N_1: mokʷapke·meN *returners* [N_1 = (61, TB, 221), 242]; te·ahkokʷilli *people guarded* [N_1 = (62, TB, 222), 241]; λaickikayo·λ *seizure* [N_1 = (63, TB, 224), 241].

NB, TB, 220 = N_1: tamalči·hke·λ *person who makes tamales* [N_1 = (NB, TB, 222), 241]; nosakaco·NtikiliS *my grass cutting* [51, N_1 = (NB, TB, 223)].

Minimum sequences for N_1 are 50, N_1; N_1, 240 or 251: moλal *your land* (52, N_1); ši·čλi *owl* (N_1, 241); elλapalmeN *wings* (N_1, 242); kʷaciN *little stick* (N_1, 251). Elaborations of these sequences are of the following types: ± other prefixes, 50, N_1, ± 242, ± 251; 50, N_1, 231, ± 242; ± 10, ± 40, N_1, 241. Examples: šiwa·lnosiwa·h *come be my wife*! (14, 41, 51, N_1); tioNini·Nte·pahtihka·waN *we go over there to be their healers* (12, 42, 56, N_1, 242); moahkolciciN *your little arms* (52, N_1, 242, 251); noeso *my own blood* (51, N_1, 231); išiwiyowaN *its own leaves* (53, N_1, 231, 242); tika·walli *you are a widow* (12, N_1, 241); šioNta·hλi *go be a father*! (14, 42, N_1, 241).

1.2.2. Noun stems, class 2 (N_2).

± 71, IB, 210 = N_2: λahλaλasiniN *a group of coughers* [N_2 = (71, IB, 211), 241]; mokiskaN *your exit* [52, N_2 = (IB, 212)].

60, ± 71, TB, 210 = N_2: mokecaniN *stoppers* [N_2 = (61, TB, 211), 241]; λanahnamakayaN *place where things are sold continuously* [N_2 = (63, 71, TB, 214)].

NB, TB, 210 = N_2: kalči·waniN *house builders* [N_2 = (NB, TB, 211), 241]; iya·cahkaN *his water valve* [53, N_2 = (NB, TB, 212)].

Sequences in which N_2 occur are of the following types: N_2, 241; 50, N_2. Examples: te·pianiN *they are caretakers* (N_2, 241); mokʷapaniN *returners* (N_2, 241); iλape·waniN *his hunters* (53, N_2).

1.3. Particle stems.

PB = P: ka *with* (PB); amo *no* (PB).

PB, PB = P: kaNpa *where* (PB, PB); se·yok *another* (PB, PB).

P occurs only in sequence P: λeN *that which* (P); saN *nothing more* (P).

2. Prefixes 10–21 appear in word initial only; prefixes 30–71 in word initial and medial.

2.1. Prefixes 10: 11. ni- *first person singular actor;* 12. ti- ~ #- *second person singular and first person plural actor;* 13. aN- *second person plural actor;* 14. ši- ~ #- *imperative.*

We use the symbol <> to denote that certain affixes require certain other affixes in the same sequence, the symbol >< to indicate mutually exclusive affixes.

Prefixes 10 >< suffixes 210. Prefix 11 >< prefix 13 and <> suffix 191. Prefix 14 >< suffixes 161, 182, 184–188.

Prefixes 10 occur in sequences of the following types: 10, 30, ± 41, ± 71, T or B, ± suffixes; 10, ± 40, 60, ± 71, T, ± suffixes; 10, ± 40, ± 71, I, ± suffixes; 10, ± 40, ± 50, N_1, ± suffixes. Examples: tiki·NWa·lkahka·htose·h *he will keep coming to leave them* (12, 35, 41, 71, T, 171, 187, 191); nihtemowia *I lower it* (11, 32, T, 161); aNkioNpi·kilia·h *you (pl.) are going over there to wrap it for him* (13, 32, 42, B, 161, 191); šihwa·li·kili *bring it to him!* (14, 32, B); niλakʷahtinemi *I go along eating* (11, 63, T, 141, 154); nimošašawa *I stick myself* (11, 61, T); šioNλahλačia *go look continually!* (14, 42, 71, I); aNya·se·h *you (pl.) will go* (13, I, 187, 191); šioNini·NikniN *go be their brother!* (14, 42, 56, N_1); tikone·λ *you are a child* (12, N_1, 241).

2.2. Prefix 21: ne·č- *first person singular goal.*

Prefix 21 >< prefixes 10, 30, 50–60, and suffixes 200.

Prefix 21 occurs in sequences of the following types: 21, ± 40, ± 71, T or B, ± suffixes. Examples: ne·čwa·lnohno·ca *she comes to talk to me* (21, 41, 71, T); ne·čλaλasi·ltia·h *they make me cough* (21, T, 161, 191); ne·čcakʷilihke·h *they closed it for me* (21, B, 186, 191); ne·čto·kilihte·waya *he sowed it for me before he left* (21, B, 141, 156, 185); ne·čwa·lpowilia *he comes to read it to me* (21, 71, B, 161).

2.3. Prefixes 30: 31. mic- *second person singular goal;* 32. ki- ∼ -k- ∼ -h- *third person singular goal;* 33. te·č- *first person singular and plural goal;* 34. a·me·č- ∼ -me·č- *second person plural goal;* 35. ki·N- *third person plural goal.*

Prefixes 30 >< prefixes 21, 50, 60, and suffixes 200.

Prefixes 30 occur in sequences of the following types: ± 10, 30, ± 40, ± 71, T or B, ± suffixes. Examples: te·čte·mo *look for me!* (14, 33, T); nikoNte·mitia *I am going over there to fill it up* (11, 32, T, 161); ki·NWa·lkahka·htose·h *they will keep coming to leave them* (35, 41, 71, T, 171, 187, 191); tiki·nohno·čilia·h *we speak to them for her* (12, 35, 71, B, 161, 191); kiwi·kilihte·waskia *she would carry it away for him* (32, B, 141, 156, 188).

2.4. Prefixes 40: 41. wa·l- *from there to here;* 42. oN- *from here to there.*

Prefixes 40 >< suffixes 181–184, 210.

Prefixes 40 occur in sequences of the following types: ± 10, ± 30, 40, ± 71, T or B, ± suffixes; ± 21, 40, ± 71, T or B, ± suffixes; ± 10, 40, ± 60, ± 71, T, ± suffixes; ± 10, 40, ± 71, I, ± suffixes; ± 10, 40, ± 50, N_1, ± suffixes. Examples: šikoNihita *go see it!* (14, 32, 42, 71, T); tiki·NoNpahtia·h *we go over there to cure him* (12, 35, 42, T, 161, 191); kiwa·lpi·kilia *he comes to wrap it for her* (32, 41, B, 161); ne·čwa·lpowilia *he is coming to read it for me* (21, 41, B, 161); tiwa·lλape·wa·h *we will come hunt* (12, 41, 63, T, 191); oNpaλa·Nki *it went to fly* (42, I, 186); niwa·lweci *I come to fall* (11, 41, I); šioNini·NikniwaN *go be their brothers!* (pl. command) (14, 42, 56, N_1, 262); wa·lima·iknin *he comes to be her friend* (41, 53, N_1).

2.5. Prefixes 50: 51. no- *first person singular possessive;* 52. mo- *second person singular possessive;* 53. i- ∼ iy- ∼ Ø- *third person singular possessive;* 54. to- *first person plural possessive;* 55. a·mo- *second person plural possessive;* 56. ini·N- *third person plural possessive;* 57. te·- *indefinite possessive.*

Prefixes 50 >< prefixes 21, 30, and suffixes 141–191.

Prefixes 50 occur in sequences of the following types: ± 10, ± 40, 50, N_1, ± suffixes; 50, N_2. Examples: šiwa·lnosiwa·h *come be my wife!* (14, 41, 51, N_1); tite·ta·hwaN *we are parents* (12, 57, N_1, 262); ini·Nomiyowan *their bones* (56, N_1, 211, 262); imeλ *his metate* (53, N_1); moeso *your own blood* (52, N_1, 231); iλape·waniN *his hunters* (53, N_2).

2.6. Prefixes 60: 61. mo- ≈ m- *reflexive;* 62. te·- *indefinite personal goal;* 63. λa- *indefinite impersonal goal.*

Prefixes 60 occur in sequences of the following types: ± 10, ± 40, 60, ± 71, T,

± suffixes. Examples: niλakʷakʷahtinemi *I go along eating* (11, 63, 71, T, 141, 154); šiomosewi *go sit down*! (14, 42, 61, T); waˑlteˑiˑšitia *he comes to wake someone* (41, 62, T, 161).

Prefixes 60 also occur in sequence with certain bases in the development of N_1 and N_2: 60, ± 71, IB, 120, 220 = N_1; 60, NB_2, 111, 220 = N_1; 60, ± 71, TB, 220 = N_1; 60, ± 71, IB, 121, 131, 222 = N_1; 60, ± 71, TB, 210 = N_2. Examples: λaλehkoˑltilli *what was lowered* [N_1 = (63, IB, 123, 222), 241]; λapahtilisλi *cure* [N_1 = (63, NB_2, 111, 223), 241]; teˑihičtehkeˑmeɴ *thief* [N_1 = (62, 71, TB, 221), 242]; λanamakayaɴ *where things are sold* [N_2 = (63, TB, 214), 241]. (For further examples, see **1.2.1–2**).

2.7. Prefix 71: Vh- ∼ CVh- *intensifier and repetitive.*

Prefix 71 occurs in sequences of the following types: ± other prefixes, 71, I or T or B, ± suffixes. Examples: λahλačiˑštoyaˑh *they were staring* (71, I, 171, 185, 191); nipahpano *I pass continually* (11, 71, I); tihwaˑlkʷahkʷalaˑniaˑh *we come to annoy him* (12, 32, 41, 71, T, 161, 191); tiλawahwaˑca *you dry something* (12, 35, 71, T); nimicnohnoˑčiliki *I will come speak to you for him* (11, 31, 71, B, 181); šihwaˑliˑkili *bring it for him*! (14, 32, B).

Prefix 71 also occurs in sequence before certain bases in the development of N_1 and N_2: 71, IB, 220 = N_1; 60, 71, IB, 120, 220 = N_1; 60, 71, TB, 220 = N_1; 60, 71, IB, 122, 131, 222 = N_1; 71, IB, 210 = N_2; 60, 71, TB, 210 = N_2. Examples: kʷahkʷalaɴkeˑλ *grouch* [N_1 = (71, IB, 221), 241]; λakihkiˑštilli *what was taken out* [N_1 = (63, 71, IB, 122, 222), 241]; λaihilli *what was drunk* [N_1 = (63, 71, TB, 222), 241]; kohkočiniɴ *sleepy-heads* [N_2 = (71, IB, 211), 241]; teˑmehmelaˑhko *where people are found repeatedly* [N_2 = (62, 71, TB, 213), 241]. (See **1.2.1–2** for additional examples).

3. Suffix 141 appears only in word medial; suffixes 111–131, 151–188, 211–231, 242 both in word medial and final; suffixes 191, 241, 251 only in word final.

3.1. Suffix 111: -ti *verbalizer.*

Suffix 111 occurs in sequence after NB in the development of I, T, B, and N_1: NB_1, 111 = I; NB_2, 111 = T; NB_1, 111, 121 = T; NB_2, 111, 131 = B; NB_1, 111, 221 or 223 = N_1; 60, NB_2, 111, 220 = N_1. Examples: tiλaˑkatihkeˑh *we were born* [12, I = (NB_1, 111), 191]; λateˑɴtia *he puts a point on it* [63, T = (NB_2, 111), 161]; kiˑɴλaˑkatilih *she gave birth to them* [34, T = (NB_1, 111, 121), 186]; nihyoyoɴtilihtos *I will be dressing him for her* [11, 32, B = (NB_2, 111, 131), 171, 187]; tekitikeˑλ *worker* [N_1 = (NB_1, 111, 221), 241]; iteˑpahtilis *his cure* [53, N_1 = (62, NB_2, 111, 223)].

3.2. Suffixes 120: 121. -li ≈ -ti ≈ -wi *transitive*; 122. -ti *causative*; 123. -lti ≈ -ˑlti *compulsive.*

Suffixes 120 occur in sequence with certain bases in the development of T, B, and N_1: IB, 120 = T; NB_1, 111, 121 = T; IB, 121 or 122, 131 = B; 60, ± 71, IB, 120, 220 = N_1; 60, ± 71, IB, 122, 131, 222 = N_1. Examples: motetilia *it gets hard* [61, T = (IB, 121), 161]; teˑčmačiˑltiaˑh *he gives me to understand* [22, T = (IB, 123), 161, 191]; micšokʷetiliˑs *he will make you crippled* [31, T = (NB_1, 111, 121), 187]; kimačtilih *he taught it to her* [32, B = (IB, 121, 131), 186]; λakihkiˑštihkeˑλ *person who takes things out* [N_1 = (63, 71, IB, 122, 221) 241]; λaneˑštililli *what was taught* [N_1 = (63, IB, 122, 131, 222), 241].

3.3. Suffix 131: -li ≈ -ˑli *benefactive.*

Suffix 131 occurs in sequence with certain bases in the development of B and N_1: TB, 131 = B; NB_2, 111, 131 = B; IB, 121 or 122, 131 = B; 60, ± 71, IB, 122, 131, 222 = N_1. Examples: tikiˑnohnoˑčiliaˑh *we speak to them for him* [12, 34, 71, B = (TB, 131), 141, 191]; nihλahpialilia *I look after it for her* [11, 32, B = (IB, 121, 131), 141]. (Further examples are given in **1.1.3** and **1.2.1**).

3.4. Suffix 141: (-ti- ≈ -hti-) ∼ (-t- ≈ -ht-) *second verb base marker* (?)

Suffixes 150: 151. yah ∼ ya- ∼ yawi- *go, efferentive*; 152. wa·lah ∼ wa·la- ∼ wa·lawi- *come, afferentive*; 153. weci ∼ wec- *fall, inceptive*; 154. nemi ∼ neN- *walk, diffusive*; 155. ki·sa ∼ ki·s- *go forth, promotive*; 156. e·wa ∼ e·- *raise, premotive.*

Suffix 141 is found only in sequence before suffixes 150. Suffixes 141 and 150 >< prefixes 50, suffixes 161 and 200.

Suffixes 141 and 150 occur in sequences of the following types: ± prefixes, I, 141, 150, ± other suffixes; 21, ± other prefixes, T or B, 141, 150, ± other suffixes; ± 10, 30, ± other prefixes, T or B, 141, 150, ± other suffixes; ± other prefixes, 60, ± 71, T, 141, 150, ± other suffixes. Examples: yahtinemi *he goes all around* (I, 141, 154); tiki·stiyawi·h *we go walking out* (12, I, 141, 151, 191); ne·čto·kilihte·wase·h *they will plant it for me before they go away* (21, B, 141, 156, 187, 191); niki·nλehkoltihtiki·saya *I was making them go out and climb up* (11, 35, T, 141, 155, 185); aNkiki·štilihtiwecia·h *you (pl.) were going to take it from him* (13, 32, B, 141, 153, 185, 191); niλakʷahtiwa·lah *I come along eating* (11, 63, T, 141, 152).

3.5. Suffix 161: -a ∼ -wa meaning undetermined.

Suffix 161 >< prefixes 14, 50, suffixes 141, 150, and 200.

Suffix 161 occurs in sequences of the following types: ± prefixes, I, 161, ± 185, ± 191; 21, ± other prefixes, T or B, 161, ± 185, ± 191; ± 10, 30, ± other prefixes, T or B, 161, ± 185, ± 191; ± other prefixes, 60, ± 71, T, 161, ± 185, ± 191. Examples: čičia *it becomes bitter* (I, 161); ticikʷinowa·h *we hiccough* (12, I, 161, 191); ne·čne·štiaya *he found me* (21, T, 161, 185); tiki·nohno·čilia·h *we speak to them for him* (12, 34, 71, B, 161, 191); aNλailpiaya·h *you (pl.) were tying up something* (13, 63, T, 161, 185, 191); te·čλapoliaya *he opened it for me* (22, B, 161, 185).

3.6. Suffix 171: -to ≈ -hto *progressive.*

Suffix 171 >< prefixes 50 and suffixes 200.

Suffix 171 has been found only in sequences of the following types: ± prefixes, I, 171, ± other suffixes; 21, ± other prefixes, T or B, 171, 180, ± 191; ± 10, 30, ± other prefixes, T or B, 171, ± other suffixes; ± other prefixes, 60, ± 71, T, 171, ± other suffixes. Examples: miktos *he will be dying* (I, 171, 187); šičo·katokaN *be crying!* (pl. command) (14, I, 171, 191); ne·čkalči·htoya·h *they had been building me a house* (21, T, 171, 185, 191); tihλapolihtose·h *we will be opening it for him* (12, 32, B, 171, 187, 191); šihtencakto *keep your mouth closed* (14, 32, T, 171); timokectoskia *you would be stopping* (12, 61, T, 171, 188).

3.7. Suffixes 180: 181. -ki *action in intraverse direction, non-actualized*; 182. -ko *action in intraverse direction, actualized*; 183. -ti *action in extraverse direction, non-actualized*; 184. -to *action in extraverse direction, actualized*; 185. -a ∼ -ya *imperfective*; 186. -h ≈ -k ≈ -hki ≈ -ki ≈ -hk- *perfective*; 187. -s ≈ -·s *future*; 188. -skia ≈ -·skia *conditional.*

Suffixes 180 >< prefixes 50 and suffixes 200. Suffixes 181–184 >< prefixes 40; suffixes 185–188>< prefix 14; suffixes 181–184, 186–188 >< suffix 161.

Suffixes 180 occur in sequences of the following types: ± prefixes, I, ± other suffixes, 180, ± 191; 21, ± other prefixes, T or B, ± other suffixes, 180, ± 191; ± 10, 30, ± other prefixes, T or B, ± other suffixes, 180, ± 191; ± other prefixes, 60, ± 71, T, ± other suffixes, 180, ± 191. Examples: kʷatitose·h *they will be tired* (I, 171, 187, 191); ničo·kaya *I was crying* (11, I, 185); ne·čne·štihtiki·saya *she went forth to find me* (21, T, 141, 155, 185); micahkiltihtinemito·h *they went walking around making you swim* (31, T, 141, 154, 184, 191); kika·wilihke·h *they left it for him* (32, B, 186, 191); timosehse·wihke·h *we sat down repeatedly* (12, 61, 71, T, 186, 191).

3.8. Suffix 191: -kaN ≈ -ke·h ≈ -e·h ≈ -·h *verb pluralizer.*

Suffix 191 >< prefix 11 and suffixes 200.

Suffix 191 occurs in sequences of the following types: ± prefixes, I, ± other suffixes, 191; 21, ± other prefixes, T or B, ± other suffixes, 191; ± 10, 30, ± other prefixes, T or B, ± other suffixes, 191; ± other prefixes, 60, ± 71, T, ± other suffixes, 191. Examples: ne·stose·h *they will be coming in view* (I, 171, 187, 191); tipe·wa·h *we begin* (12, I, 191); ne·čpahtihke·h *they cured me* (21, T, 186, 191); šihpihpi·kikaN *keep wrapping it* (pl. command) (14, 32, 71, T, 191); tiki·nohno·čilia·h *we talk to them in her place* (12, 34, 71, B, 161, 191); omokectiyawi·h *they go along stopping over here* (42, 61, T, 141, 151, 191).

3.9. Suffixes 210 and 220: 211. -niN *collective agentive*; 212. -kaN ≈ -hkaN *locative*; 213. -ko ≈ -hko *locative*; 214. -yaN *locative*; 221. (-ke· ≈ -hke·) ~ (-ka· ≈ -hka·) ~ (-ka·h ≈ -hka·h) *agentive*; 222. -l *participial*; 223. -lis *nominalizer*; 224 -yo· ≈ -hyo· ≈ -kayo· ≈ -hkayo· *abstractivizer and generalizer.*

Suffixes 210 and 220 in sequence with TB and BB (and sequences which may comprise T or B, see **1.1.2–3**) <> prefixes 60.

Suffixes 210 have been found only in sequence with certain bases in the development of N_2: ± 71, IB, 210; 60, ± 71, TB, 210; NB, TB, 210. Examples: wehwecko *falling place* [N_2 = (71, IB, 213), 241]; moλape·waniN *your hunters* [52, N_2 = (63, TB, 211)]; kʷašilokohkaN *where bananas are bought* [N_2 = (NB, TB, 212), 241].

Suffixes 220 occur only in sequence with certain bases in the development of N_1: ± 71, IB, 220; 60, ± 71, IB, 120, 220; NB_1, 111, 221 or 223; 60, NB_2, 111, 220; 60, ± 71, TB, 220; NB, TB, 220; 60, ± 71, IB, 122, 131, 222. Examples: ini·Nkočka·h *their sleepy-head* [56, N_1 = (IB, 220)]; λakihki·štilli *what was taken out repeatedly* [N_1 = (63, 71, IB, 122, 222), 242]; tote·na·miktiliswaN *our marriages* [54, N_1 = (62, NB_2, 111, 223), 242]; λaihilli *what was drunk* [N_1 = (63, 71, TB, 222), 241]. (See **1.2.1** for further examples).

3.10. Suffix 231; -o ~ -yo *intimate possessive.*

Suffix 231 occurs only in sequences of the following types: 50, N_1, 231, ± 242. Examples: ikʷiλapilo *its own tail* (53, N_1, 231); ini·Nomiyowan *their own bones* (56, N_1, 231, 242).

3.11. Suffixes 240: 241. [(-li ≈ -liN) ~ (-λi ≈ -iN) ~ -λ] ≈ -∅ *absolutive*; 242. -meN ~ -waN ~ -ci- *noun pluralizer.*

Suffix 241 occurs only in sequences of the following types: ± 10, ± 40, N_1, 241; N_2, 241. Examples: okʷilliN *worm* (N_1, 241); niλapa·kiltihke·λ *I am an entertainer* (11, N_1, 241); šioNkʷalli *go be good!* (14, 42, N_1, 241); te·pianiN *they are caretakers* (N_2, 241); λawa·cko *drying place* (N_2, 241).

Suffix 242 occurs only in sequences of the following types: ± 10, ± 40, ± 50, N_1, 242, ± 251. Examples: teposmeN *pieces of metal* (N_1, 242); kʷaciciN *little sticks* (N_1, 242, 251); a·moλake·NwaN *your (pl.) covers* (55, N_1, 242); aNtota·hwaN *you (pl.) are our parents* (13, 54, N_1, 242); timaλakmeN *we are ten* (12, N_1, 242); tioNini·Nikniwan *we go to be their brothers* (12, 42, 56, N_1, 242).

3.12. Suffix 251: -ciN *diminutive.*

Suffix 251 occurs only in sequences of the following types: ± 10, ± 40, ± 50, N_1, ± 242, 251. Examples: tokaciN *little spiders* (N_1, 251); moahkolciciN *your little arm* (52, N_1, 242, 251); tite·ikniNciN *you are a little brother* (12, 57, N_1, 251); wa·lkʷalciciN *they come to be good little ones* (41, N_1, 242, 251).

CHEROKEE VERB MORPHOLOGY III*

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4. S (verb stem)
4.0. Introduction
4.1. Status of stem vowels ə, e, u, o
4.2. Structure of verb stems
4.3. Thematic consonant alternants
4.4. Suffix list
4.5. Stem classes
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5. F (Suffix)
5.0 Introduction
5.1 Morpheme alternants
5.2 Morpheme distribution
6. Conclusion

4.0. The purpose of the present section is to expand the statement of stem vowels and to list the types of phoneme sequences which occur as verb stems. Those sequences which exhibit equivalent thematic consonant alternations will then be grouped together into stem classes. A verb stem is defined as any phoneme or phoneme sequence preceded by P and followed by F.

4.1. Before proceeding with the listing of stem types and classes it will be convenient to extend the analysis of stem vowels. It was suggested in **3.1** that stem vowels ə, o, e, u might be analyzed as vowel a plus a following vowel, i.e. a + a = ə, a + i = e, a + u = o, a + o = u. There is considerable support for this analysis of stem vowels. A sample of approximately nine hundred verbs shows that less than 4 per cent have stem vowels o, u, e, and slightly more than 6 per cent have stem vowel ə, while 90 per cent are divided almost equally between a and overriding i. The regular alternation of a + a = ə was noted in **2.2.1.** It is now seen that stem vowel ə is replaced by a when third person singular is preceded by covert a. Thus we find the following: agw-ə'n-əgi *I did weave* but nuw-a'n-ói *she had already woven*, uw-a'n əgi *she did weave*, uw a'n-idi *she is about to weave*, cf. agw-ə'n-idi *I am about to weave*. Other examples are: uw-a'-sgalón-əgi *he did hide* (*F*), cf. h-ə'sgalón-əhe *hide* (*F*) *later!* uw-a'sgaldis-gei *I heard that he hid* (*L*), cf. g-ə'sgal-da *hide* (*L*) *immediately!* uw-a'dan-idi *he is about to put* (*R*) *in the fire*, cf. h-əda-si *put* (*R*) *in the fire for me!* uw-agu'-sdhanəgi *she sifted it* (*lit. caused it to leak*), cf. g-əgu'-sdhanohna *she is through sifting it*, uw-a'nil-ei *I heard that it hit him*, cf. dəgw-ə'nil-i *it will hit me.* We further find such forms as e-doh-a *he is just walking about.* -doh *non-purposive* is a suffix morpheme which occurs only after -i *future, movement.*[1] Here the phoneme e results from the combination of stem vowel a occurring before -i *future, movement*; cf. the following forms: e-doh-əgi *he was just walking about*, h-e-da (do + a = da) *you walk about now!* oz-e-dóh-əgi *while others and I were walking about*, g-e-doh-esdi *I will be walking about*, g-e-doh-a *I am walking about.* Further, the vowel combination au never occurs in Cherokee. Hence the occurrence of stem vowel a followed by u yields o. Stem vowel u may be said to result when a and o combine.

There is considerable descriptive convenience in the foregoing analysis of stem vowels. This is seen especially in the so-called classificatory verbs.[2] Thus we find the following forms: g-ǿəs-ga *I put* (*F*) *in the water*, g-úəs-ga *I put* (*R*) *in the water*, and z-iudi-a *I put* (*L*) *in the water.* It is noted in the above forms that no root segment is common to all three forms. As with

* For Cherokee Verb Morphology I and II see IJAL 19.172-80, 259-73 (1953).

[1] See **5.2.4.** for a statement of suffix orders.
[2] See **4.6** for a discussion of classificatory verbs.

certain other forms it would be convenient to be able to refer these forms to a common stem member. This may be done by the expansion of the stem vowel as indicated above. The forms could be read g-åaəs-ga *I put (F) in the water*, g-åoəs-ga *I put (R) in the water* and z-iaodi-a *I put (L) in the water*. Each form now contains a. We may say that a is a morpheme meaning *water* (cf. ama *water*). This operation sets up forms which are morphologically paralleled by other classificatory stems. Compare the following: g-ȯdóəs-ga *I am putting (F) in the fire*, g-ȯdas-ga *I am putting (R) in the fire*, z-ie'das-ga *I am putting (L) in the fire*. These forms exhibit a common root morpheme da *fire;* cf. g-ȯdas-ga *I am building a fire.*

4.2.1. Most Cherokee stems[3] are formed by the combination of a phoneme or phoneme sequence plus a stem-forming or thematic consonant.[4] The segments preceding thematic consonants may be referred to as roots. Hence, one type of stem is said to consist of R + T, i.e. root plus thematic consonant. In the following examples roots are enclosed in parentheses. The entire stem is enclosed in square brackets. The consonant just inside the right hand bracket is the thematic consonant: g-[(ȯweli)-s]-gəgi *I was writing;* agw-[(o'wela)-n]-əgi *I did write;* dag-[(ȯwela)-n]-i *I will write;* daz-[(ilawize)-s]-i *I will attend;* dag-[(a'le)-l]-i *he will tie it up;* dag-[(aliẘo)-z]-i *it will die;* u-[(liẘo]-z]-ei *I heard that he died;* u-[(doni?)-ø]-ei *I heard that he conjured.*

4.2.1.1. Most stems appear in one of five phonemic types. The statistically most frequently occurring types will be indicated first with the less frequently occurring types following. In the examples below the entire stem is set off from P and F by hyphens. Zero third singular pronominals will not be indicated by a special mark. T is also set off from R by a hyphen.

1. V(C)V-C.[5] Examples: u-yó-z-egi (*R*) *did break*, agí-s-gei *I heard that he was eating* (*R*), de-? yo-l-i *he will bring in* (*R*), g-əda-s-ga *I am putting* (*R*) *in the fire*, dag-o'da-n-i *he will build a fire*, duw-o'de-h-oi *he habitually stumbles*, z-igi-s-ga *I swallow it*, g-əgú-s-ohna *it has finished leaking*, u-'le-l-ei *I heard that he tied it up*, g-a'lə-s-goi *he habitually falls to sleep*, dag-asu-s-i *he will eat liquid-like food.*

2. VCVCV-C. Examples: zhesd z-ade'ya-l-əhə *don't you run in a circle!* h-isgwali-s-əhə *you break* (*L*) *later*, g-'giló-s-goi *she habitually washes* (*F*), z-iwadhi-s-gəgi *I was locating* (*R*), g-angó-s-gəgi *he was moving him*, dag-ands'a-l-i *he will bring in* (*Q*), déh-adáyo-s-gesdi *you will be surrendering*, deg-alə-h-idóhoi *he habitually goes about removing* (*L*) *from the ground*, h-adəli-s-gesdigwo *you keep on breathing!* g-adídha-s-gái *while he was drinking.*

3. VCVCVCV-C. Examples- ag-inəgalə-h-əgi *I did clean it*, g-anəlíye-s-gegi *she was rubbing grease on it*, ogin-adádoli-s-dhani *another and I made a request*, agw-adísgalha-n-əgi *I hid myself*, du-dog'di-s-goi *he habitually staggers*, an-aduldi-s-gei *I heard that they begged*, déh-igawalha-n-əhə *you bet on him later!* den-igwayoh-l-i *they will peek at them*, daz-agonhíyo-z-izu *are you going to be late?*

4. VCVCVCVCV-C.[6] Examples: asde-daliyé-s-ohnazu *is he through changing his mind?* al'zidóhe-s-ga *he is instructing him.*

5. VCVV-C. Examples: agw-adóo-s-idi *I am about to fall*, h-ade'o-s-gazu *are you embarrassed?*

[3] Throughout this section roots will be referred to as R. Thematic segments will be referred to as T.

[4] Thematic consonants may in certain cases be replaced by zero consonant. For a full discussion of thematic consonant alternants see **4.3.**

[5] (C) indicates that C may or may not occur. -C indicates T consonant. Any C except -C may occur as CC or CCC.

[6] The only stem type discovered which is longer than that indicated in 4 is a compounded stem type VCVCVCVCVCV-C, e.g. uw-adígwalədə'ya-l-əgi *he turned it around* < dagwalelu *wheel* + -ade'ya- *go around.*

4.2.1.2. A special case of R + T stems is the occurrence of a stem vowel followed by T. g-é-s-ga *I am weaving*, g-ə'-s-ga *she is weaving*, g-e-a *I live*, gaz h-e'-ei *where do you live?* In accordance with the statement set forth in **4.1** these stem vowels may be indicated as fused vowels which yield the above phonemic forms, i.e. g-ə́-s-ga may be analyzed as g-á+a-s-ga while g-e-a would be analyzed as g-a+i-a. There is one case in which stem vowel i occurs before T: daz-i-l-i *I will kill it*. Depending on the analysis of stem vowels we may list a class of stems as V(V)-C. The only discovered examples of stem vowel plus T are the ones indicated above.

4.2.1.3. It is further found that the stem vowel R in **4.2.1.2** may occur in at least one form as zero before T. Thus, we find that root -ii- in z-ii-s-dohda *I killed it accidentally* is replaced by -i- in z-i-l-əgi *I did kill it*. (T alternant l replaces s before -əgi). Root -i- is further replaced by zero when preceded by pronominal gə *I-you*: gə-ø-l-əgi[7] *I did kill you*. Thus we may set up a new type of stem, zero R + T. A special case of zero R + T is noted in the form ag-ø-'-əgi *I did have* (*R*). Here stem vowel root -i- is dropped before ' which occurs in the position of T. The form -ii- *to kill* presents still another shape when no thematic consonant follows. We find such a form as z-i-ohna *I am through killing it*. Here we may set up the root as -i- and the T consonant as ø. The stem in this case is R + zero T. In at least one case it is necessary to set up the entire stem as zero, i.e. zero R + zero T. This situation occurs when suffix -el *dative* replaces thematic l.[8] Thus we find z-i-el-əgi *I killed it* for him where -i- = R + zero T. However, when gə *I-you* is substituted for z *I*, -i- is replaced by zero and the form becomes gə-ø-el-əgi which exhibits zero R + zero T; cf. also sdə-el-əgi *you du. killed it for me*.

4.2.2. In addition to the stem structures set forth in **4.2.1–4.2.1.3** there occurs a stem type which is regularly followed by h or ' before all suffixes: agw-olh-esdi *I will be sitting*, h-e'-oi *I habitually live*. It is noted that suffix forms -gesdi *future stative* and -goi *habituative* appear in these stems with the initial -g replaced by h. Stems of this type are correlated with the meaning STATIVE.[9] However, it is not possible to set up two formal classes of stems on the semantic basis of STATIVE STEMS. VS. ACTIVE STEMS. Many so-called STATIVE meanings are to be found in stems which exhibit T consonants and the full form of the suffix, e.g. z-ileye-s-ga *I am hot*, daz-ileyə-s-i *I will be hot*, ali'eli-g-ei *I heard that he was happy*, in-ali'elí-g-əgi *you and I were happy*, da'g-anawo-z-i *he will be cold*. Also it was shown in **4.2.1.3** that ACTIVE stems occur which exhibit zero T consonant. Hence we must indicate by lists those stem forms having neither T nor the initial consonant of the suffix. Some examples are: dogin-i'-a *another and I own* (*R*), h-e'-esdi *you will be living*, nagd'ah-ói *he already knew it*, agd'ah-esdi *he will know about it*, g-ane'-ei *I heard that he held* (*L*) *in his hand*.

Although it is not possible to assign meanings to thematic consonants there is one stem class (verb stem class IV-A, see **4.5**) which regularly expresses STATIVE meaning by the loss of T and the initial consonant of the suffix.[10] Thus we find the following: g-ə́da-s-ga *I am putting* (*R*) *in the fire* but g-ə'd-a (*R*) *is in the fire*, agw-ə'da-n-əgi *I did put* (*R*) *in the fire* but g-ə'd-əgi

[7] For the conditions of pronominal alternation see **3.2.3.1.**

[8] We may speak of a morpheme -el *dative* at this point. e does not infix before l of gə-l-əgi. The l following e in gə-el-əgi occurs after e before all vowel-initial suffixes. For a full discussion of non-final suffixes followed by alternant consonants before vowel-initial and g-initial suffixes see **5.1.2.2.1.**

[9] The majority of stems exhibiting T consonants before the initial suffix are said to express active meanings.

[10] A stem final vowel is lost when followed by another vowel, i.e. g-oda-s-goi drops s-g, and a of g-oda is lost before o: g-o'd-oi.

(*R*) *was in the fire*, g-ə'da-s-gesdi *he will be putting* (*R*) *in the fire* but g-ə́'d-esdi (*R*) *will be in the fire*, h-ə'da-s-goi *you habitually put* (*R*) *in the fire* but g-ə'd-oi (*R*) *is habitually in the fire*, g-ȯda-s-ga *I build a fire* but g-o'd-a *a fire is built*, g-o'da-s-goi *he habitually builds a fire* but g-o'd-oi *a fire is habitually built, i.e. kept burning*, g-adisgalha-n-əgi *I did hide but* g-adisgalh-əgi *I was hidden*, ogin-dísgalha-s-goi *another and I habitually hide* but ogin-dísgalh-oi *another and I are habitually hidden*, u-disgalha-n-ei *I heard that he hid* but u-dísgalh-ei *I heard that he was hidden*. Stems occurring in this group may be placed under one of the phonemic types of stems indicated in **4.2.1.1** with the additional indication of loss of final V and -C.

4.3. It has been shown that members of class S are for the most part composed of a phoneme or phoneme sequence followed by a thematizing consonant before the initial suffix. It will now be convenient to indicate the consonant members of T and the distribution of these consonants before various initial suffixes. All consonant phonemes (including zero) except m, w, and g occur as members of T. In the examples below some T member occurs before suffix -i *future*.

I. (1) daz-iwóni-s-i *I will make a speech;* (2) de-siwa-h-i *he will cough;* (3) dag-anugo-z-i *he will go outside;* (4) də-gd'eno-l-i *he will inspect it;* (5) dag-o'da-n-i *he will build a fire;* (6) daz-igadhi-d-i *I will wait for him;* (7) daz-isdo-ø-i *I will grind it.*

The above examples exhibit T consonants s, h, z, l, n, d, ø. It is further found that some T consonants have alternant forms before different suffixes. Thus when -goi *habituative* is substituted for -i *future* in all the above examples we obtain the following forms:

II. (1) dez-iwóni-s-goi *I habitually make speeches;* (2) u-siwa-s-goi *he habitually coughs;* (3) g-anugo-ø-goi *he habitually goes outside;* (4) a-gd'eno-h-oi *he habitually inspects it;* (5) g-o'da-s-goi *he habitually builds a fire;* (6) ag-igadhi-y-oi *I habitually wait for him;* (7) z-isdo-s-goi *I habitually grind it.*

By comparing the foregoing sets of examples we note the following: s of I-1 remains unchanged in II-1. h, n, ø of I-2, 5, 7 are replaced in II-2, 5, 7 by s. z of I-3 is replaced by ø in II-3. l of I-4 is replaced by h in II-4. Here it may be said that h replaces both T consonant l and the initial member of the suffix, i.e. l + g = h. d of I-6 is replaced by y in II-6. Here, as in the case of I-4 and II-4, y replaces both d and g of the suffix, i.e. d + g = y.

It is apparent from this that morpheme boundaries may be placed differently than suggested here. However, as will be shown in **4.5** there is considerable economy of statement gained by setting up the habituative suffix in II as -goi. Replacements may then be stated in reference to this basic member. An inspection of stems before many suffixes reveals that T consonants alternate before two main groups of initial suffixes. Thus we find I-3 -anugo-z- *to go outside* occurring before such initial suffixes as -əhe, -əgi, -ohn, and -e, e.g. h-anugo-z-əhə *you go outside after awhile*, unugó-z-əgi *he did go outside*, anugó-z-ohna *he is through going outside*, da-g-anugó-z-eli *he will go outside for him*. Also we find that T alternant ø occurs before several suffixes, e.g. anugó-ø-gesdi *he will be going outside*, anugo-ø-gə́i *while he was going outside*, unugó-ø-gəgi *he was going outside*. It appears from the foregoing that T consonants may be said to alternate before two phonologically differentiable sets of suffixes, i.e. before vowel-initial suffixes and g-initial suffixes.[11]

4.4.1. The following[12] are V-suffixes: -əgi *aorist*, -i *future, movement*, -əhə *future imperative*, -ohn *completive*, -e *dative*, -əhi

[11] Vowel-initial and g-initial suffixes will be referred to as V-suffixes and G-suffixes respectively.

[12] The morphemes listed in **4.4.1** include only initial position suffixes. For a discussion of suffixes see **5.**

definite past, -'ə *potential*,[13] -e *intermittent*, -oi *perfect past*, -hi *purposive*.[14] The following are G-suffixes: -ga *present action*, -gəgi *imperfect*, -goi *habituative*, -gesdi *stative future*, -gəi *progressive past*, -gi *agentive*.

4.4.2. It will be convenient to list here a group of initial suffixes which are not linked to the verb stem by a thematic consonant.[15] It will suffice to list these suffixes at this point. They will be treated fully in **5**. The suffixes which occur without T preceding T alternants are: -ga whose meaning ranges over *recent past*, *imperative*, *conditional*, -gi *reversive*, -sdiyi *infinitive*, and -sda *accidental*, *equivocal*, *causative*, *instrumental*.

4.5. The purpose of **4.3–4.4** was to bring together initial suffixes which exhibit similar T alternations. That operation resulted in two phonologically differentiated suffix groups before which T alternations are said to occur. We now turn to the forms preceding T and group into a class all phoneme sequences which exhibit similar T alternations before V- and G-suffixes. This grouping yields stem classes.

We may now list six stem classes. These statements indicate the final phoneme preceding T and the T alternants occurring before V- and G-suffixes. It is also necessary to state certain replacements which serve to set up subclasses within a class. The detailed statements of stem classes are summarized in **4.5.1** by a stem class chart.

I-A. Stems of class I-A end in any vowel (except e) followed by s before V- and G-suffixes. Stems ending in o add hi+s before -e *dative*.

I-B.[16] Stems of class I-B end in i followed by s before V- and G-suffixes. i is replaced by hi+s before -e *dative*. -ga *present action* is replaced by -ha.

I-C. Stems of class I-C end in ə or i followed by s before V- and G-suffixes. -ga *present action* is replaced by -a.

I-D. Stems of class I-D end in e, a or (ə ~ i). e, a, ə are followed by h before V-suffixes; e, a, i are followed by s before G-suffixes. h is replaced by zero before -e *dative*.

I-E. Stems of class I-E end in $ə^{(')} \sim i^{(')}$. (') indicates that ' may or may not occur. $ə^{(')}$ is followed by ø before V-suffixes; $i^{(')}$ is followed by s before G-suffixes. -ga *present action* is replaced by -a.

II-A. Stems of class II-A end in h or any vowel (except e) followed by z before V-suffixes and by ø before G-suffixes.

II-B. Stems of class II-B end in e followed by s before V-suffixes and by ø before G-suffixes.

III-A. Stems of class III-A end in i, ə, e, o followed by l before V-suffixes and by h before G-suffixes. h replaces g of G-suffixes.

III-B. Stems of class III-B end in ə followed by l before V-suffixes. ə is followed by i plus h before G-suffixes. h replaces g of G-suffixes.

III-C. Stems of class III-C end in a ~ o. a is followed by l before V-suffixes; o is followed by h before G-suffixes. h replaces g of G-suffixes.

IV-A. Stems of class IV-A end in a followed by n before V-suffixes and by s before G-suffixes.

IV-B. Stems of class IV-B end in a(h) ~ i(h). a(h) is followed by n before V-suffixes; i(h) is followed by s before G-suffixes. -ga *present action* is replaced by -a.

V. Stems of class V end in i followed by d before V-suffixes and by y before G-suffixes. y replaces g of G-suffixes.

IV-A. Stems of class VI-A end in (C ~ i) or any vowel except ə. C or vowel is followed by ø before V-suffixes. Vowel or i is followed by s before G-suffixes. -ga *present action* is replaced by -a.

[13] ə indicates that the contour mark regularly occurs on the vowel immediately preceding ə.

[14] -hi *purposive* will be considered as a V-suffix.

[15] See **5.1** passim for the alternations of these forms.

[16] When -ga is replaced by any other form T consonant s is lost.

VI-B. Stems of class VI-B end in ə ~ n. n is followed by ø before V-suffixes. ə is followed by s before G-suffixes.

4.5.1. It will be convenient to state the T alternants in chart form. In the left column are listed the stem class members, with the T alternants before V-suffixes and G-suffixes in the middle and right columns respectively. Special alternations occurring before V- and G-suffixes which were listed in **4.5** are also included in the chart.

Stems of This Class	Have this T alternant before V-suffixes	And this T alternant before G-suffixes
I-A	s -ohi-s-e	s
I-B	s hi-s-e	s ga → ha
I-C	s	s ga → a
I-D	h ø-e	s
I-E	ø	s ga → a
II-A	z	ø
II-B	s	ø
III-A	l	h l + g → h
III-B	l	ih l + g → h
III-C	al	oh l + g → h
IV-A	n	s
IV-B	n	s ga → a
V	d	y d + g → y
VI-A	ø	s ga → a
VI-B	ø	s

4.5.1.1. This section lists utterances which exhibit stems of each of the classes set forth in **4.5.** Each stem is followed by at least two V-suffixes and two G-suffixes. Examples will also be given in each case where special alternations give rise to the subclasses within a class.

I-A. degadáyo-s-ga *I am surrendering*, dadáyo-s-gǒi *while he was surrendering*, degindáyo-s-idi *you and I are about to surrender*, déhadayo-s-əhə *you surrender later!* dagwadáyo-s-əgi *I did surrender*, dezadáyo-s-əhizu *did you ever surrender?* dundáyo-s-ói *they had already surrendered.*

I-B. ziwóni-ha *I am making a speech*, agiwóni-s-əgi *I did make a speech*, hiwóni-s-gesdi *you will be making a speech*, daniwóni-s-ohna *they are through making speeches*, degawóni-s-goi *he habitually makes speeches*, gawóni-s-gəgi *he was making a speech.*

I-C. galísgi-a *I am dancing*, uls'gi-s-əgi *he did dance*, gals'gi-s-gəgi *he was dancing*, hals'gi-s-gesdigwo *you keep on dancing!* hals'gi-s-ósəgi *you danced a bit here and a bit there*, uls'gi-s-idóhoi *he habitually goes about dancing.*

I-D. a'sdoye-ha *he is cutting hair*, sgs'doye-ha *you are cutting my hair*, zísdoyé-s-gəgi *I was cutting hair*, a'sdoye-h-idoha *he goes about cutting hair*, zísdoyé-h-əgi *I did cut his hair*, a'sdoye-h-ohna *he is through cutting hair*, sgs'doyé-h-əhə *you cut my hair later!* a'sdoye-s-goi *he habitually cuts hair.*

I-E. gadoní-a *I am conjuring*, gadoní-s-gəgi *I was conjuring*, adoni'-a *he is conjuring*, adoni-'s-gəgi *he was conjuring*, dagadonə́-ø-i *I will conjure*, dədonə'-ø-i *he will conjure*, g-adoní-s-goi *I habitually conjure*, adoni'-s'-goi *he habitually conjures*, agwadonə'-ø-əgi *I did conjure*, udonə'-ø-əgi *he did conjure*, gadonə́-ø-idoha *I go about conjuring*, adonə'-ø-idoha *he goes about conjuring*, gadoní-s-gesdi *I'll be conjuring*, adoni'-s-gesdi *he'll be conjuring.*

II-A. ayo-ø-ga (*L*) *is breaking*, dəyo-z-i (*L*) *will break*, ayo-ø-gəgi (*L*) *was breaking*, uyo-z-ǒhi (*L*) *is broken*, uyo-z-əgi (*L*) *did break*, uyo-z-idi (*L*) *is about to break*, yuyó-z-ə *if* (*L*) *breaks*, ayo-ø-gəsdi (*L*) *will be breaking*, ayo-ø-goi (*L*) *habitually breaks.*

II-B. adade-ø-ga *he is limping*, gadade-ø-gəgi *I was limping*, dədáde-s-i *he will limp*, adadé-ø-gesdi *he will be limping*, anadáde-s-idoha *they are just limping about*, gadade-ø-gǒi *while I was limping*, adade-s-isəgi *he went along limping*, gadadé-ø-goi *I habitually limp*, hadade-s-éhə *you limp after awhile!*

III-A. zinudheyo-ha *I am twisting it*, aginudheyo-l-əgi *I did twist it*, daganudheyo-l-i *he will twist it*, ganudheyo-həgi[17] *he was twisting it*, hanudheyó-hesdi *you will be*

[17] In stems of class III where l and g are both replaced by h the sequence following h will not be separated by the hyphen.

twisting it, ganudheyó-hoi *he habitually twisted it*, hinudheyó-l-əhə *twist it later!*

III-B. gáləi-ha *I am tying it*, ga'ləi-ha *he is tying it*, agwa'lə-l-əgi *I did tie it*, u'lə-l-əgi *he did tie it*, yu'lə̄-l-ə *if he ties it*, za'lə-l-ə́hisgo *did you ever tie it?* ana'ləi-hesdi *they will be tying it*, ana'lə-l-idi *they are about to tie it.*

III-C. zisəgwalho-ha *I am rolling it*, dazisəgwalha-l-i *I will roll it*, uwasəgwalha-l-əgi *he did roll it*, anisəgwalho-həgi *they were rolling it*, gasəgwalha-l-isəgi *he was going along rolling it*, anisəgwalho-hoi *they habitually roll it.*

IV-A. desíla-s-ga *I am packing pl.* (*R*), dega'la-s-goi *he habitually packs pl.* (*R*), zhesd za'la-n-əhə *don't you pack* (*R*)*!* dedaga'la-n-i *he will pack pl.* (*R*), ga'la-néhi (*R*) *is already packed*, yiza'lá-n-ə *if you pack* (*R*), dani'la-s-gəi *while they were packing pl.* (*R*), nagi'la-n-ói *I had already packed* (*R*), dogini'la-n-idi *another and I are about to pack pl.* (*R*).

IV-B. gòweli-a *I am writing*, go'weli-s-gəgi *he was writing*, uwo'wela-n-əgi *he did write*, dago'wela-n-i *he will write*, gòweli-s-gə́i *while I was writing*, ho'wela-n-əhə *you write after awhile*! ano'wela-n-ohna *they finished writing*, zo'wela-n-ə́hisgo *did you write it?* ziyòwela-n-eləgi *I wrote it for him*, agwo'wela-n-idi *I am about to write it*, ho'weli-s-gesdigwo *you will keep on writing.*

V. gəgádhi-yesdi[18] *I will be waiting for you*, dazígádhi-d-i *I will wait*, higd'i-d-əhə *you will wait later!* agigd'i-yoi *he habitually waits for me*, zigádhi-d-əgi *I did wait*, anigd'i-yə́i *while they were waiting*, agd'i-d-ohna *he is through waiting.*

VI-A. ziudi-a *I am putting* (*L*) *in the water*, ziudi-s-gəgi *I was putting* (*L*) *in the water*, a'udi-s-goi *he habitually puts* (*L*) *in the water*, hi'ud-ø-əhə *you put* (*L*) *in the water after awhile*, a'ud-ø-ohna *he is through putting* (*L*) *in the water*, hi'udi-s-gesdigwo *you will keep on putting* (*L*) *in the water*, zisdo-a *I am grinding it*, zisdo-s-gəgi *I was grinding it*, ags'dó-ø-əgi *I did grind it*, hi'sdó-ø-əhə *you grind it after awhile!* a'sdó-s-goi *she habitually grinds it*, ani'sdó-s-gesdi *they will be grinding it*, a'sdó-ø-ohna *he habitually goes about grinding it*, dag'sdo-ø-eli *I will grind it for you.*

VI-B. zizée-s-ga *I am pouring it*, zizée-s-gəgi *I was pouring it*, dazizən-ø-i *I will pour it*, azə́n-ø-idóhoi *he habitually goes about pouring it*, agizən-ø-əgi *I did pour it*, yuzə́n-ø-ə *if you pour it*, nazən-ø-ói *he had already poured it*, anizə́ə-s-goi *they habitually pour it*, hizən-ø-əhə *you pour it after awhile*, dazizə́n-ø-eli *I will pour it for you.*

4.6.0. Cherokee exhibits a special group of stems which are commonly known as classificatory stems.[19] This classification refers to certain semantic categories which are translated throughout as flexible (F), round (R), long (L) and liquid (Q).[20] These stems are not given special consideration merely because of their semantic distinctiveness but rather because of various morphological problems they present. Classificatory stems in Cherokee exhibit considerable variation and may be said to reflect an earlier stage of the language. The variation in structure is seen in the position of classifier morphemes and the morphophonemic replacements within a given stem. Classifier forms may occur immediately following P morphemes, e.g. I-1 in **4.6.1.** Classifier morphemes may occur immediately preceding the T alternant, e.g. I-4 in **4.6.1.** Classifier forms occur as zero as well as overtly. In any case these special morphemes occur within the phoneme sequences defined as members of class S. In most cases it is necessary to state certain morphophonemic relations which are found throughout in order to set up a common

[18] In stems of class V where y replaces both d and g, y will not be separated from the following sequence by the hyphen.

[19] Mary R. Haas, Classificatory Verbs in Muscogee, IJAL 14.244-6 (1948).

Harry Hoijer, Classificatory Verb Stems in the Apachean Languages, IJAL 11.13-23 (1945).

[20] (Q) refers to a container of liquid as well as to liquid proper.

stem form in each of the columns in **4.6.1–4.6.2.** There are cases where the stem analysis is not morphophonemically conclusive. In these cases it is necessary to suggest a suppletive stem. The purpose here is not to avoid admitting suppletive stems but rather to operate within the established morphophonemic framework wherever this is possible.

It proves descriptively convenient to seek to set up a single stem form regardless of the classifier that occurs. It will be seen that several classifier morphemes recur while several must be said to be unique.

The procedure for presenting these forms will be to group together under I in **4.6.1** all those stems which exhibit relatively simple morphophonemic alternations. Stems of more complex alternations will be grouped under II in **4.6.2.** The purpose in this morphophonemic gradation is to present the simpler alternations first. The more complex formulations under II will be added to these. Only the stem and classifier elements appear in the columns. These are set off from each other by a hyphen. Where two vowels merge to yield a single vowel the position of the hyphen will be after the coalescent vowels. At the right of each stem is given the stem class number from **4.5.** Hence it will not be necessary to include the T consonants in the examples in the columns. It will be noted in I and II that there are certain limitations on the categories expressed. (F) and (R) appear most frequently, (L) less so, and (Q) still less frequently. Suppletive stems in the columns under I and II are preceded by the asterisk. Doubtful cases are not indicated as suppletive but their status is mentioned in each case in the morphological discussion under sets I and II.

4.6.1. Stems of set I.

4.6.1.1. The above forms will now be divided into individual morphemes where more than one morpheme can be shown to exist in a single stem. In the examples classifiers and stems will be separated by the hyphen. In order not to confuse the stem and classifier structure T consonants will be indicated with the initial suffix.

	(F)	(R)	(L)	(Q)
1.	-in-awadhə- [I-D][21]	-i'wadhə- (I-D]	-iyə-'wadhə- [I-D]	-in-e-'wadhə- [I-D]
2.	-iy-ag- [VI-A]	-ig- [VI-A]	-isd-ig- [VI-A]	* -asu- [VI-A]
3.	-ə'd-əə- [VI-B]	-ə'da- [IV-A]	-i'ə'da- [IV-A]	
4.	-is-əə- [VI-B]	-i'sa-hə- [VI-B]	-i'sa-d- [VI-A]	
5.	-il-əə- [VI-B]	-i'la- [IV-A]	-ila-d- [VI-A]	
6.	-əsgal-əə- [VI-B]	-əsgalha- [IV-A]	-əsgala-d- [VI-A]	

I-1(F). daz-in-awadhə-hi *I will find* (*F*): -in- (*F*) + -awadhə- *find*.

I-1(R). z-iwadhi-sgəgi *I was finding* (*R*): zero morpheme (*R*) + -iwadhi- *find*. It is noted here that stem vowel i appears before -wadhə- *find* whereas stem vowel a appears before -wadhə- in I-1(F). As was suggested in **4.1** we may state that stem vowel a of -awadhə- underlies overriding i in -iwadhə- of I-1(R). This analysis is supported by the analysis of the morphophonemic form -yə of I-1(L).

I-1(L). u-yə-'wadhə-həgi *he did find* (*L*): -ya- (*L*) + stem vowel a yields -yə- + -'wadhə- *find*. This is the regular alternation seen in **2.2** and **3.2.3.1.**

I-1(Q). h-in-e-'wadhə-həhə *you find* (*Q*) *after awhile!* As will be seen throughout these forms, especially in set II, (F) and (Q) appear to be analyzable as related elements. Here -in- (*F*) occurs followed by -e- (*Q*) which replaces stem vowel a + -wadhe- *find*; cf. g-an-awadhi-ha *he is finding* (*F*) and g-an-e-wadhi-ha *he is finding* (*Q*).

Other examples of I-1: uwadhǻhidi *he is about to find* (*R*), də'wadhəhi *he will find* (*R*), da'wadhǻdohda *he accidentally found* (*R*), agiyə'wádhəhəgi *I did find* (*L*), dadəyə'-wadhəeli *he will find* (*L*) *for her*, zinewadhə *I just found* (*Q*), sgi'newadhəi *find* (*Q*) *for me!*

[21] -wadhə- *find* replaces ə by i before T alternants followed by G-suffixes.

I-2(*F*). z-iy-agi-a *I am eating* (*F*): -iy- (*F*) + -agi- *eat*.

I-2(R). h-ig-ohna *you have finished eating* (*R*): zero morpheme (*R*) + -ig- *eat*. It is noted here as in I-1 that stem vowel a in I-2(F) appears overriden by stem vowel i in I-2(R).

I-2(L). daz-isd-ig-i *I will eat* (*L*): -isd- (*L*) + -ig- *eat*. Here stem vowel i occurs after -isd- (*L*).

I-2(Q). g-asu-a *I am eating* (*Q*). This is a suppletive form.

Other examples of I-2: gayagisgei *I heard that he was eating* (*F*),[22] zayagə́hizu *have you ever eaten* (*F*)? ghag gayagə *who ate* (*F*)? higa *you eat* (*R*)! agisgoi *he habitually eats* (*R*), aga *she just ate* (*R*), nugói *she had already eaten* (*R*), zisdigohna *I have finished eating* (*L*), hisdigəhə *you eat* (*L*) *after awhile!* hisdigazu *did you eat* (*L*)? dhasusi *you will eat* (*Q*), hasuwa *you eat* (*Q*)!

I-3(F). g-ə́d-ə́ə-sga *I am putting* (*F*) *in the fire*. It was shown in **4.1** that -əd- has an alternant -əda- when occurring before a consonant, e.g. g-əda-sga *I am putting* (*R*) *in the fire*. Hence, -əd- ∼ -əda- *put in fire* + -əə- (*F*).

I-3(R). g-ə́da-sga *I am putting* (*R*) *in the fire*: -ə́da- *put in the fire* + zero morpheme (*R*).

I-3(L). z-i̇́ə'da-sga *I am putting* (*L*) *into the fire*. The majority of the classificatory stems exhibit stem vowel i. Here as in II-5 of **4.6.2** stem vowel i intrudes before ə. It is also noted that ' occurs before -da- in all first person as well as non-first person forms, except when -'da- is followed by -gi *reversive*; cf. ziəda-gi-a *I am removing* (*L*) *from the fire*. Cf. hi'ə'daga *you put* (*L*) *in the fire*. There is no basis for setting up a morpheme (*L*) in this form.

Other examples of I-3: dagədəni *I will put* (*F*) *in the fire*, zhesd z'dənəhə *don't you put* (*F*) *in the fire!* dhədánelizu *are you going to put* (*R*) *in the fire for him?* hə'daga *put* (*R*) *in the fire!* gə́dasgoi *I habitually put* (*R*) *in the fire*, hi'ə'daga *you put* (*L*) *in the fire!* ziə'danohna *I finished putting* (*L*) *in the fire*.

I-4(F). z-is-əə-sga *I am putting* (*F*) *on a surface above the ground*: -isa- *put on upper position* + -əə- (*F*) (a of -sa- is dropped when followed by ə, see I-4(R)), cf. z-in-əə-sga *I am putting* (*F*) *on the ground*. Here -in- ∼ -ina- indicates *ground level*. For further examples of this form see II-3.

I-4(R). z-ísa-hə-sga *I am putting* (*R*) *on a surface above the ground*: -ísa- *put on upper position* + -hə- (*R*).

I-4(L). z-isa-d-ia *I am putting* (*L*) *on a surface above the ground*: -isa- *put on upper position* + -d- (*L*).

Other examples of I-4: usənidi *he is about to put* (*F*) *on upper position*, sgs'énehezu *did you put* (*F*) *on upper position for me?* sgs'áhneləhə *you put* (*R*) *on upper position for me after awhile!* hisahə́sgesdigwo *you keep on putting* (*R*) *on upper position*, zisadohna *I am through putting* (*L*) *on upper position*, asádisgei *I heard that he put* (*L*) *on upper position*.

I-5(F). z-il-əə-sga *I am putting* (*F*) *in a container*: -il- ∼ -ila- *put in container* + -əə- (*F*).

I-5(R). z-íla-sga *I am putting* (*R*) *in a container*: -ila- *put in container* + zero morpheme (*R*).

I-5(*L*). z-ila-d-ia *I am putting* (*L*) *in a container*: -ila- *put in container* + -d- (*L*).

Other examples of I-5: degaló́əsgoi *he habitually puts pl.* (*F*) *in a container*, galə́nohna *he has finished putting* (*F*) *in a container*, zhesd za'lanəhə *don't you put* (*R*) *in a container!* ga'lanə́hi (*R*) *is already put in a container*, yiza'láne *if you put* (*R*) *in a container*, dhildizu *are you going to put* (*L*) *in a container?* galadisdohda *I did put* (*L*) *in*

[22] For those interested in the correlation of extra-linguistic situations with the elements of linguistics, the following may be noted: corn, whether eaten on the cob or after being cut from the cob, is rendered as in I-2(L) selu zisdigia *I am eating* (*L*) *corn*. But corn is canned with the classification (R), selu dezílodiha *I can* (*R*) *corn*. Canned cut corn is removed from the container as (R) selu dezílagia *I remove* (*R*) *corn from the jar*, and then eaten as (L) selu dezisdigia *I eat* (*L*) *corn*. This is but one of many similar situations.

a container by mistake, hilada *you put* (*L*) *in a container!*

I-6(F). g-ȯsgal-əə-sga *I am hiding* (*F*): -ȯsgal- ~ -ȯsgala- *hide* + -əə- (*F*).

I-6(R). g-ȯsgalha-sga *I am hiding* (*R*): -ȯsgalha- *hide* + zero morpheme (*R*).

I-6(L). g-ȯsgala-d-ia *I am hiding* (*L*): -ȯsgala- *hide* + -d- (*L*).

Other examples of I-6: uwa'sgalənəgi *he did hide* (*F*), dagə'sgaləni *he will hide* (*F*), uwasgalənei *I heard that he did hide* (*F*), hə'sgalhaga *you hide* (*R*) *now!* gə'sgalhanidóhoi *he habitually goes about hiding* (*R*), uwa'sgaldei *I heard that he hid* (*L*), daziyȯsgaldeli *I'll hide* (*L*) *for him,* hə'sgalda *you hide* (*L*)*!*

Forms in set I were said to exhibit a single stem in all four classifications. There only slight morphophonemic changes were noted. In the following forms, set II, additional morphophonemic statements are needed to indicate a single stem in each of the four columns. It will be noted that some cases are not conclusive. Hence some forms must be indicated as suppletive.

4.6.2. Stems of set II.

(F)	(R)	(L)	(Q)
1. -in-əə- [VI-B]	-i'ə- [VI-B]	-i-d- [VI-A]	-in-ehə- [VI-B]
2. -i'n-eh- [S][23]	-i'y-eh- [S]	-in-e'- [S]	-i'na-z-eh- [S]
3. -inə- [S]	* -ih- [S]	-ə-y- [S]	-in-eh- [S]
4. -ad-əə- [VI-B]		-ad'o-sa-d- [VI-A]	
5. -ə'ə- [VI-B]	-'u-ə- [VI-B]	-i'u-d- [VI-A]	
6. -isa-h-əə- [VI-B]	-i'sa-h-ə [I-C]	-is-i-yə- [I-C]	
7. -ȯg-ilo- [VI-B]	-u'-ilo- [VI-B]		
8. -igali- [I-A]	-ig-á-ali- [I-E]	-i-a-gwali- [I-A]	
9.	-il-o- [VI-B]	-iy-o- [II-A]	

4.6.2.1. Set II stem morphophonemics.

II-1(F). z-in-əə-sga *I am putting* (*F*) *on lower level*: -in- ~ -ina- *lower level,* i.e. *ground or floor* + -əə- (*F*).

II-1(R). z-iə-sga *I am putting* (*R*) *on lower level*: -iə- *lower level* + zero morpheme (*R*). (-ie- is the morphophonemic replacement of -in- in II-1(F); a similar alternation was indicated in **3.2.3.1** where pronominal alternations were discussed).

II-1(L). z-i-d-ia *I am putting* (*L*) *on lower level.* Here, on the basis of the morphophonemics of **3.2.3.1** we may say that -d- represents morphophonemic -ə- of II-1(R) and -n- of II-1(F). An alternant solution is to indicate -n- *lower level* as zero followed by -d- (*L*).

II-1(Q). z-in-ehə-sga *I am putting* (*Q*) *on a lower level*: -in- ~ -ina- *lower level* + -ehə- (*Q*).

The form II-1 has the additional meaning *give* when the stem occurs before the suffix -e *dative.* Thus we find the following: sg-in-əə-s-i[24] *you give me* (*F*)*!* a'ə-s-i *he just gave me* (*R*), daz-i-d-el-i *I will give* (*L*) *to them,* sg-in-ehə-s-i *you give me* (*Q*)*!*

Other examples of II-1: hinánəhə *you put* (*F*) *on lower level after awhile!* ganánidóhoi *he habitually goes about putting* (*F*) *on lower level,* ganáəsgoi *he habitually puts* (*F*) *on lower level,* a'əsga *he is putting* (*R*) *on lower level,* a'ginəgi *I did put* (*R*) *on lower level,* udei *I heard that he put* (*L*) *on lower level,* adidóhei *I heard that he goes about putting* (*L*) *on lower level,* hidiga *you put* (*L*) *on lower level!* hináəsizu *did you give* (*F*) *to her?* deganánelídoha *he is going along putting* (*F*) *on lower level,* daziəsi *I will give* (*R*) *to him,* ys'ginéle *if you give* (*R*) *to me,* hidisi *you give* (*L*) *to him!* sgidisi *you give* (*L*) *to me!* dudeləgi *he gave pl.* (*L*) *to her,* ys'ginenélə *if you will give* (*Q*) *to me,* daganeneli *he will give* (*Q*) *to him,* ds'ginenelizu *are you going to give* (*Q*) *to me?*

II-2(F). z-in-eh-a *I am holding* (*F*). Stems in II-2 and 3 are indicated as having no T consonant before the initial suffix. -in- ~ -ina- (*F*) + -eh- *hold,* cf. I-1.

[23] [S] refers to STATIVE stems characterized by the absence of thematic consonants with initial suffix alternation. See **4.2.2.**

[24] -e *dative* has an alternant -s before -i *imperative, recent past, conditional*

II-2(R). z-ły-eh-a *I am holding.* (*R*) We may consider y as a replacement of n in -ina- + -eh- *hold.* On the other hand, it is possible to indicate -y- ~ -ya- as a morpheme (*R*).

II-2(L). z-in-é-a *I am holding* (*L*). -in- ~ -ina- occurs here as in II-2(F). Here ' occurs in final position. Hence we find zinéa *I hold* (*L*) but gane'a *he holds* (*L*). (*L*) is set up as a zero morpheme.

II-2(Q). z-ina-z-eh-a *I am holding* (*Q*): -ina- + -z- (*Q*) + -eh- *hold.*

Other examples of II-2: ga'neha *he is holding* (*F*), hi'nehesdi *you will be holding* (*F*), ga'nehəgi *he was holding* (*F*), ziyehesdi *I will be holding* (*R*), a'yehei *I heard that he held* (*R*), dani'yeha *they are holding several* (*R*), zinə́əgi *I was holding* (*L*), gane'əgi *he was holding* (*L*), zinéei *I held* (*L*) *but didn't know it,* gane'ei *I heard that he held* (*L*).

II-3(F). ag-ina-a *I have* (*F*). The stem of this form may be indicated as -ina- (cf. II-2 -ina- + -eh-).

II-3(R). ag-ih-a *I have* (*R*). This stem appears as a suppletive form.

II-3(L). agw-ə-y-ə *I have* (*L*). -ə- appears as morphophonemic -na- *have* before -y- (*L*).

II-3(Q). ag-in-eh-a *I have* (*Q*): -in- *have* + -eh- (*Q*). The stem in this form is the same form as occurs in II-1 and 2. In II-1 -eh- is followed by -ə-. In II-2 -eh- is preceded by -z-.

Other examples of II-3: ginínaa *you and I have* (*F*), zanaəgi *you did have* (*F*), zanaesdi *you will have* (*F*), duha *he has several* (*R*), dezəyəgi *you had several* (*L*), agwəyəgi *I had* (*L*), uwayəzu *did he have* (*L*)*?* zha yagwəyei *I didn't have* (*L*), zaneha *you have* (*Q*), uninehei *I heard that they had* (*Q*), unehesdi *he will have* (*Q*).

II-4(F). g-ad-əə-sga *I am hanging up* (*F*): -ad- ~ -ada- *hang* + -əə- (*F*).

II-4(L). g-ad'o-sa-d-ia *I am hanging up* (*L*). It was suggested in **4.1** that stem vowel a may be considered as underlying all other stem vowels. That analysis indicated that a followed by mid vowels e and o yields a higher than mid vowel. It was seen in **2.2** and **3.2.3.1** that a + a yields ə, a high central mid vowel. Since the combination au does not occur, it may be possible to indicate a mid vowel arising from the combination of a plus u. Thus the stem in this example with the addition of ' is said to be the same as in I-4(F), -ad'a- *hang* + -u- + -sa- *upper level* (see I-4) + -d- (*L*).

Other examples of II-4: agwadə́nəgi *I did hang up* (*F*), hadə́əga *you hang up* (*F*)*!* gadə́əsgoi *he habitually hangs up* (*F*), agwd'-osadəgi *I did hang up* (*L*), gd'osadia *he is hanging up* (*L*), had'osada *you hang up* (*L*)*!*

II-5(F). g-ə́ə-sga *I am putting* (*F*) *in the water.* It is possible to indicate a common stem element in II-5. Thus the form gə́əsga may be indicated as g-a + əəsga. There is considerable descriptive convenience in this analysis. The stem is analyzed as -a- *water* (cf. ama *water*) + -əə- *put* (*F*).

II-5(R). g-ú-ə-sga *I am putting* (*R*) *in the water*: -a- *water* + -o'ə- *put* (*R*). (For stem vowel analysis see II-4).

II-5(L). z-iu-d-ia *I am putting* (*L*) *in the water.* Intrusive stem vowel i occurs with forms indicating (*L*) here and in I-3(L). -a- *water* + -od- *put* (*L*).

Other examples of II-5: hə'əga *you put* (*F*) *in the water now!* sgw'əsi *you put* (*F*) *in the water for me!* g'nohna *he has finished putting* (*F*) *in the water,* gu'əsga *he is putting* (*R*) *in the water,* dagúni *I will put* (*R*) *in the water,* sgwu'əsi *you put* (*R*) *in the water for me!* gúnídohəgi *I was going about putting* (*R*) *in the water,* uwu'nidi *he is about to put* (*R*) *in the water,* hi'ədəhə *you put* (*L*) *in the water after awhile!* ziúdidóhegi *I was going about putting* (*L*) *in the water,* u'udidi *he is about to put* (*L*) *in the water,* a'údisdohda *he accidentally put* (*L*) *in the water.*

II-6(F). z-isa-h-əə-sga *I am moving* (*F*) *on upper level*: -isa- *upper level* + -h- *move* + -əə- (*F*), cf. I-4.

II-6(R). z-isa-h-ə-a *I am moving* (*R*) *on upper level*: -isa- *upper level* + -h- *move* + -ə- (*R*).

II-6(*L*). z-is-i-yə-a *I am moving* (*L*) *on upper level*: -is-*upper level* + -i- (*L*)

(morphophonemic d before y) + -yə- *move* (morphophonemic -hə-).

Other examples of II-6: hi'sahəəsga *you are moving* (*F*) *on upper level*, hi'sahəna *you move* (*R*) *on upper level*, ags'ahósəgi *I did move* (*R*) *on upper level*, zs'ahósəgi *you did move* (*R*) *on upper level*, hisiyəna *you move* (*L*) *on upper level*, dazisiyəsi *I will move* (*L*) *on upper level*.

II-7(F). g-ǵg-ilo-a *I am washing* (*F*). Here it is convenient to analyze stem vowel ə as a + a. Hence: -á- + -ag- (*F*) + -ilo- *wash*.

II-7(R). g-ú-ilo-a *I am washing* (*R*): -a- + -ó- (*R*) + -ilo- *wash*, cf. II-4, 5.

Other examples of II-7: g'giloa *she is washing* (*F*), g'gilóohna *she is through washing* (*F*), yuw'gilóa *if she washes* (*F*), agw'gilóəgi *I did wash* (*F*), gu'iloa *she is washing* (*R*), gúilósgəgi *I was washing* (*R*), uwu'ilóei *I heard that she washed* (*R*), hu'ilóəhə *you wash* (*R*) *after awhile!*

II-8(F). z-igali-sga *I am cutting off a piece of* (*F*): -igali- *cut off a piece* + zero morpheme (*F*).

II-8(R). z-ig-á-ali-ha *I am cutting off a piece of* (*R*). Here it is possible to set up a discontinuous stem which has the same members as in II-8(F) and (L), -ig . . . ali- *cut off a piece* + -á- (*R*) which occurs in the stem position marked. . . .

II-8(L). z-i-s-gwali-sga *I am cutting off a piece of* (*L*). It is again possible to set up a stem similar to the above. Here the cluster gw results from the occurrence of s plus g. (For a similar alternation see **3.2.3.1**). Hence the stem is -i . . . gali- with -s- (*L*) before g.

Other examples of II-8: dazigalisi *I will cut off a piece of* (*F*), agalisdohda *she accidentally cut off a piece of* (*F*), higalaga *you cut off a piece of* (*F*)! ugalisei *I heard that he cut off a piece of* (*F*), aga'aliha *she is cutting off a piece of* (*R*), higa'alə *you cut off a piece of* (*R*)! dəga'aləhi *she will cut off a piece of* (*R*), uga'aləhidi *she is about to cut off a piece of* (*R*), asgwalisga *she is cutting off a piece of* (*L*), hisgwalisəhə *you cut off a piece of* (*L*) *after awhile!* dhisgwaliselizu *are you going to cut off a piece of* (*L*) *for him?*

II-9(R). z-il-o-a *I am breaking* (*R*). In II-9(R) and (L) it may be possible to set up a single stem morpheme -o- *break*. As in several other cases, the argument for a single stem occurring in alternant forms is not conclusive here. The entire stems in both II-9(R) and II-9(L) are not the same since they occur with different thematic consonants, i.e. they belong to different stem classes. -il- indicates (*R*) if we set up -o- as the stem.

II-9(L). z-iy-o-sdiha *I am breaking* (*L*) (-sdi ∼ -sda *causative*): -iy- (*L*) + -o- *break* (see above).

Other examples of II-9: ulózəgi (*R*) *did break*, galógəgi (*R*) *was breaking*, zhesd hilóəhə *don't you break* (*R*): ayoga (*L*) *is breaking*, hiyosda *you break* (*L*)! ziyosda *I just did break* (*L*), uyozə́hi (*L*) *is broken*, dəyosí (*L*) *will break*.

4.6.3. Stems exhibit certain morphophonemic changes when followed by -gi *reversive* (for translations see below). The procedure here is to list those stems in I and II which may be followed by -gi. -gi is set off from the stem and following suffix by the hyphen. The actual replacements that occur may be seen by comparing these forms with the listed stems in **4.6.1** and **4.6.2.**

I-3(F). gə́da-gi-a *I am removing* (*F*) *from the fire*, dagə́da-gi-si *I will remove* (*F*) *from the fire*, g'da-gí-sgəgi *he was removing* (*F*) *from the fire*.

I-3(R). gəda-gi-a *he is removing* (*R*) *from the fire*, gəda-gí-da (*R*) *is out of the fire*, (it is noted here that ' of I-3(F) occurs as the only distinction between I-3(F) and I-3(R) when the -əda- is followed by -gi).

I-3(L). ziəda-gi-a *I am removing* (*L*) *from the fire*, a'əda-gi-a *he is removing* (*L*) *from the fire*, (it is noted here that ' which occurs with d in I-3(L) is lost when followed by -gi).

I-4(F), (R). ((F) and (R) fall together

in this form). zisə-gi-a *I am removing (F) (R) from an upper level*, dhisə-gi *you remove (F) (R) from an upper level!* dedase-gi-sizu *is she going to remove (F) (R) from an upper level?*

1–5(F), (R). zila-gi-a *I am removing (F) (R) from a container*, déhila-gi-sdohdhazu *did you accidentally remove (F) (R) from a container?* dhila-gi *you will remove (F) (R) from a container*, déhila-gi-sgesdigwo *you will keep on removing (F) (R) from a container.*

II-1(F). zina-gi-a *I am picking up (F) from a lower level*, una-gí-səgi *he did pick up (F) from a lower level*, gana-gí-sgoi *he habitually picks up (F) from a lower level*, hina-gi *you pick up (F) from a lower level*, (this form when followed by the *dative* suffix -e ~ -si has the meaning *take away from*), dedagə́na-gi-eli *I will take away several (F) from you*, unə́-gi-eləgi *he did take (F) away from her*, gana-gi-eha *he is taking (F) away from her.*

II-1(R). zi-gi-a *I am picking up (R)*, hi-gi *you pick up (R)*! a-gi *he just did pick up (R)*, u-gi-sei *I heard that he picked up (R)*, a-gi-sidóhoi *he habitually goes about picking up (R)*, u-gí-sdhanei *I heard that he picked up (R) by mistake.*

II-1(Q). zine-gi-a *I am picking up (Q) from a lower level*, une-gí-səgi *he did pick up (Q) from a lower level*, hine-gi *you did pick up (Q) from a lower level*, gane-gí-sgoi *he habitually picks up (Q) from a lower level*, gane-gi-ehəgi *he is taking (Q) away from him* (this form also means to milk, e.g. wag gane-gí-eha *he is milking the cow*), zine-gí-sdohdáneləgi *I did take (Q) away from him by mistake.*

II-5(F). gə́-gi-a *I am removing (F) from the water*, dagə́-gi-si *I will remove (F) from the water*, dhə-gi-elizu *will you remove (F) from the water for her?* he-gi *you remove (F) from the water!* gə-gi *I just did remove (F) from the water.*

II-5(R). gu-gi-a *I am removing (R) from the water*, hu-gi *you remove (R) from the water!* uwu-gí-sei *I heard that she removed (R) from the water*, dhu-gí-sizu *are you going to remove (R) from the water?* agwu-gí-sidísəgi *I was about to remove (R) from the water but didn't.* Note the loss of ' in the above forms.

4.6.4. There are a few stems which exhibit only one classificatory category. Here it is not possible to indicate stem and classificatory elements. Examples: gə́sgwaloa [VI-B] *I am cracking (R)*, he'sgwaloza *you crack (R)*! danə' sgwalósgei *I heard that they cracked (R)*, dagə' sgwaloi *he will crack (R)*, dezisdalhiyasga [I-D] *I am splitting (L)*, asdalhiyasga *he is splitting (L)*, dəsdalhiyahi *he will split (L)*, agwals'osdiha *I am pointing (L) at it*, wuls'osdhanəgi *he pointed yonder with (L)*, wiziyalisosdiha *I am pointing at him yonder with (L).*

5.0. Morphemes of class F are defined as occurring in the environment S . . . #, i.e. between stems and the /#/ juncture which is indicated throughout by space. The purpose of the present section is to state the morpheme alternants occurring in class F and to indicate the distributional relations among the members.

The procedure here, as in the foregoing sections, will be to state the conditions for alternation as occurring in phonemically or morphemically differentiable environments. The distributional statements will be given in the form of morpheme sequence formulae consisting of relative order numbers.

5.1. For the most part, the alternations among members of this class occur at three positions in the environment defined for F. These positions may be listed as follows: (a) immediately preceding the /#/ juncture, i.e. in final suffix position, (b) immediately following members of class S, i.e. initial suffix position, and (c) immediately following non-final suffixes. The conditions in (a) are deductive statements from the rules of regular phonology given in **1.** Alternants in (b) are stated as occurring

after certain stem classes.[25] Alternants in (c) are stateable only in morphemically differentiable environments.

5.1.1. Automatic alternation.

5.1.1.1. (a) Automatic alternation in pre /ǂ/ position. Certain pre /ǂ/ vowels in included position are lost. When a vowel in this position is lost, a preceding l, d, g, z, w, or gw is devoiced. All members of class F have alternants with loss of pre /ǂ/ vowel in included position. Morphemes -əgi *aorist*, -gəgi *imperfect*, and -sdiyi *infinitive* have alternants with loss of pre /ǂ/ vowel plus the preceding consonant when they occur in included position. The procedure here will be to give a series of pairs of utterances exhibiting class F alternants in pre /ǂ/ position. The second utterance in each pair is given as the permutated form of the first.[26] Hence, the pre /ǂ/ suffix alternants may be inspected in included position as well as in final position.[27] Examples: 1. sunale gȯdas-gə agiléyəs-əgi *I burned myself this morning while building a fire*, 2. agiléyəs-ə sunale gȯdas-gói; 1. gəno'sas-g adasdayhdíyi *she is sweeping in the kitchen*, 2. adasdahydí gənosa's-ga; 1. adawo amayi *I am bathing in the river*, 2. amay adawoa; 1. hig səgd'a *you are eating an apple*, 2. səgd' hig-a; 1. hig-əh gohíyi *you eat (R) after awhile!* 2. gohí hig-əhə; 1. yag nun yuh-a *he would eat a potato if he had it*, 2. nun yuh yag-a; 1. yadon yizanugó-za *he would conjure if I would go outside*, 2. yizanugó-z yadone; 1. yig-əg azhad yiganéha *he would take fish out of the water if he had a pole*, 2. azhad yiganeh yig-əga; 1. agálisohn go'weli *he is through cutting paper*, 2. go'wel agálisohna; 1. dagís-go nun nigohiléi *he habitually eats potatoes*, 2. nigohilə nun dagís-goi; 1. gohi aziisda *he accidentally killed him awhile ago*, 2. aziisd gohíyi; 1. ag'inalus-id gadúsi *I am about to climb the mountain*, 2. gadus ag'inalus-idi; 1. dəyol gilhi *he'll shoot the dog*, 2. gilh dəyoli; 1. adades zinai *he is limping along the road*, 2. zina adades-i; 1. ziyewis-g galenía *she starts sewing*, 2. galení ziyewis-ga; 1. nal'zidóhə-gesd widadíluhzi *he will already be preaching when we arrive*, 2. widadíluhz nal'zidóhə-gesdi.

5.1.2. Non-automatic alternation.

5.1.2.1. (b) Initial suffix alternants defined by stem classes. This section lists alternants whose conditions for alternations are stated in terms of stem class final vowels.

5.1.2.1.1. The morpheme -ga *immediate imperative, recent past, conditional* exhibits several (fourteen) alternant forms. The procedure for indicating these alternants and conditions for alternation will be to list the individual alternants occurring after the stem classes. The basic alternant -ga will be listed only where -ga and another alternant form occur after the same stem class final vowel. In all positions not listed it is the form -ga which is said to occur.

In the arrangement which follows, groups of examples are given in successive paragraphs, and each paragraph begins with a bracket giving information to show what the examples exemplify. Thus, the informational bracket in the first paragraph below is [(1) I-A, (2) a, (3) hi X ø], which gives three separate items of information. The first item, after parenthetic (1), indicates "Stems of the fII. class" which, for the examples in question, is "I-A". The second

[25] Alternants described in (b) **5.1.2.1.** may be said to be partially automatic since the morphemic restrictions in (b) have been reduced to class restrictions in **4.5.** However, some classes exhibit more than one alternant of a single suffix. In these cases the alternants must be listed with the individual members of class S with which they occur. This refers particularly to -ga.

[26] Word order is free.

[27] See **4.4** for a list of initial suffix morphemes with accompanying translations. It will be noted throughout this section that no attempt is made to distinguish semantically between tense, mood and aspectual suffixes. Forms and their distributions are the only consideration. Names given to various morphemes are only suggestive. A more elaborate naming of morphemes would add little to the translations given and would reveal no additional linguistically relevant facts.

item, after parenthetic (2), indicates "Ending in the ffl. vowel" which, for the examples in question, is "a". The third item of information in this particular bracket, after parenthetic (3), is concerned with a morphophonemic rule: "Lose their T consonant before adding the ffl. -ga alternant"; this is here expressed as "hi X ø".

Besides these three items of information which remain, as given above, for all the following paragraphs, there is also an overriding rule: italic vowels or italic consonants in the formulae after parenthetic (3) indicate that the vowel after parenthetic (2) is lost.

[(1) I-A, (2) a, (3) hi X ø]: dhaluz ag'iwa-hi *I just bought a basket*, cf. ag'iwas-ga *I am buying*; hadídha-ø *take a drink!* cf. hadidhas-ga *you are drinking*.

[(1) I-A, (2) i, (3) *a* X *aga* X ø]: a'siw-a *he just painted it*, cf. a'siwis-gəgi *he was painting it;* hisgwal-aga *you cut* (*L*)! cf. hisgwalis-ga *you are cutting it;* yalid'gi-ø *he would run away*, alid'gís-goi *he habitually runs away*.

[(1) I-A, (2) o, ə, u, (3) hi X la]: hi and la appear in free variation with some stems ending in o: yasgwanigo-la ~ yasgwanigo-hi *he would be astonished*, cf. asgwanigos-ga *he is astonished;* hasgo-la *you dig!* cf. a'sgo-la *he just dug it;* aginə-la *he just sent me*, cf. unəs-ei *I heard that he sent him;* zileyə-hi *I just got hot*, cf. dazileyəs-i *I will get hot;* ayo'u-hi *he just died*, cf. dəyo'us-i *he will die*.

[(1) I-B, (2) i, (3) hi]: hiwoni-hi *you make a speech!* cf. hiwonis-goi *you habitually make speeches*.

[(1) I-C, (2) i, (3) ø]: dhinulagi-ø *you shuck corn!* cf. deganulagis-gei *I heard that he was shucking corn;* yals'gi-ø *she would dance*, cf. uls'gis-əgi *she did dance*.

[(1) I-C, (2) ə, (2) na]: hiyaghahə-na *take him away!* cf. hiyaghahəs-ga *you are taking him away*.

[(1) I-D, (2) a, (3) ø]: hiyazodha-ø *you blow on him!* cf. daziyasódha-hi *I will blow on him;* yigəno'sa-ø *she would sweep it*, cf. gəno'sas-ga *she is sweeping*.

[(1) I-D, (2) e, (3) a X *i* əli]: yals'doy-a *he would shave*, cf. als'doye-ha *he is shaving;* dhasul-i *you wash your hands!* cf. degasulesgəgi *I was washing my hands;* als'gwazhg-əli *he just rocked in the chair*, cf. als'gwazhge-ha *he is rocking in the chair*.

[(1) I-E, (2) i ~ ə. (3) ø]: yhadələ-ø *you would breathe*, cf. adəlis-gei *I heard that it was breathing;* adonə-ø *he just conjured*, cf. agwadonə́'əgi *I did conjure*.

[(1) II-A, (2) a, o, ə, u, (3) g]: (T consonants occur as zero with class II stems). dhisgo-gi *you go across!* cf. deziso-ga *I am crossing;* g'anawo-gi *he just froze*, cf. g'anawógoi *he is always freezing;* hinə-gi *you fall!* cf. ganə-gi *he just fell;* ya'sga-gi *she would scold him*, cf. gəsga-ga *I scold you*.

[(1) II-B, (2) e, (3) *u*ga]: wizad-uga *you throw it away!* cf. wizades-əhə *you throw it away after awhile!;* agigul-uga *I just belched*, cf. uwagule-goi *he habitually belches;* ds'dazh-uga *you du. get married!* cf. dadánazhes-i *they will get married*.

[(1) III-A, (2) i, (3) *g*a X za]: galíəh-ga *he just hit it*, cf. agilíənhil-idi *I am about to hit it;* ghag aghali-za *who just filled it?*

[(1) III-A, (2) e, (3) *g*a X əli]: uləde-ga *he just fainted*, cf. ulə'del-əgi *he did faint;* hilonu-əli *you trick him!* cf. galonu'es-goi *he habitually tricks him*.

[(1) III-A, (2) o, (3) *a*ga]: hinudhey-aga *you twist it!* cf. hinudheyó-hesdi *you will be twisting it*.

[(1) III-B, (2) ə, (3) za]: g'alə-za *I just tied it up*, cf. galəi-ha *I am tying it up*, yiga'lə-za *he would tie it up*.

[(1) III-C, (2) a, (3) ga X *e*ga]: hadeya-ga *you go around in a circle!* cf. dədé'yal-i *he will go around in a circle;* hisəgwal-ega *you roll it!* asəgwal-ega *he just rolled it*, cf. dazísəgwa'lal-i *I will roll it*.

[(1) IV-B, (2) i, (3) *a*]: ghags'od-a *you come down from yonder!* cf. ags'odi-ha *he is coming down from yonder*.

[(1) V, (2) i, (3) *a*]: sgisd'id-a *you wait for me*, cf. sgigd'iy-esdi *you will be waiting for me;* zagd'id-a *he just waited for you*, cf. zagd'id-ei *I heard that he waited for you*.

[(1) VI-A, (2) i, (3) *a* X ga]: galoged-a

he just cleared the ground of trees, cf. zilogédis-gəgi *I was clearing the ground of trees;* hadulad-a *you beg*, yadulad-a *he would beg*, cf. osadúldis-goi *another and I habitually beg;* hizi-ga *you pour it out!* azi-ga *he just poured it out*, cf. azis-gəgi *he was pouring it out.*

[(1) VI-A, (2) u, (3) wa]: hasu-wa *you eat* (*Q*)! dəsus-i *he will eat* (*Q*), gasu-wa *he just ate* (*Q*).

[(1) VI-A, (2) i, (3) ya): sgweli-ya *you spell it!*

5.1.2.1.2. There are two morphemes which exhibit the initial phonemic sequence -sd: -sdiyi *infinitive* and -sda *accidental, causative, equivocal, instrumental.* -sda has the form -sdi before s and h and the form -sdha which varies freely with -sdodha before n except when followed by -e *dative* in which cast it occurs as -sda. Before -da *recent past* and -sdiyi *infinitive*, -sda has the form -sdoh. Morphemes -sda and -sdiyi have alternants in which the initial s is replaced by h when following stems of class I-D, E, and VI-E. Examples: I-D: als'doy-hdohda *he shaved in the wrong manner*, uduli als'doy-hdíyi *he wants to shave;* I-E: uduli udon-hdíyi *he wants to conjure*, agwadón-hdha-n-əgi *I conjured in the wrong manner*, analen-hdi-s-gəgi *it was causing them to begin*, unduli unalen-hdíyi *they want to begin*, degasul-hdoha *I washed my hands in the wrong manner*, cf. degasulis-gəgi *I was washing my hands;* VI-B: uduli ul'zid-hdıyi *he wants to instruct*, ul'zid-hdha-n-əgi *he instructed in the wrong manner*, gad-hdi-ha *she is using it to bake with*, gad-hdi-s-gəgi *she was using it to bake with.* For further examples see **5.1.2.2.4.**[28]

5.1.2.1.3. Morphemes -ə(gi) *aorist* and -ge(gi) *imperfect* have alternants with loss of ə before -ei *reported past.* Examples: ag'iyelí-ei *I heard that he riducled me* < ə + ei, ag'iyelis-g-ei *I heard that he was ridiculing me* < gə + ei, uyo' us-ei *I heard that he died* ayo'us-g-ei *I heard that he was dying.*

[28] For other suffix alternations see the statements of replacements in **4.5** (classes I-B, C, E, III-A, B, C, IV-B, V).

All morphemes ending in vowel plus i have alternants with loss of i before -gwo *continuative.* Examples: dagidogd'onidó-ho-gwo *I kept on staggering*, cf. dagidogd'onidóhoi *I habitually stagger;* galisgis-gə-gwo *I kept on dancing*, cf. galisgis-gəi *when I was dancing;* zayósis-g-e-gwo *you continued to be hungry*, cf. zayósis-g-ei *I heard that you were hungry*, cf. agwd'ohiehesdi-gwo *he will keep on yelling at me.*

Morphemes ending in vowel plus i have alternants which vary freely with loss of i before -sgo and -zu *interrogative.* Examples: zayósis-g-e-sgo ~ zayósis-g-ei-sgo *were you hungry?* zadídhah-e-zu ~ zadídhah-ei-zu *did you get a drink?* deziniyəh-e-sgo ~ deziniyəh-ei-sgo *did you all catch them?*

Morpheme -e *dative* appears as s before alternant -i *recent past, imperative, conditional.* (See **5.1.2.2.3**) Examples: hii-s-i *you kill it for him*, cf. zi-e-l-əgi *I killed it for him.*

5.1.2.2. (c) Consonant alternants following non-final suffixes. Non-final suffixes exhibit intrusive consonant alternants before a following suffix form. In the following examples the non-final suffixes are enclosed in parentheses with the consonant alternant following the plus sign. 1. osdodán(e)+l-əgi *another and I built a fire for him*, 2. uwodho(dha)+n-əgi *he caused it to snow*, 3. uls'du(gi)+s-əgi *it opened itself*, 4. agilogan(ohn)+ø-əgi *I finished hoeing the ground.* It is found that the above intrusive consonants have alternant forms before various other suffixes. Thus if we substitute -goi *habituative* for -əgi *aorist* in the foregoing the following forms occur. 1. osdodan(e)+hoi *another and I habitually build a fire for him*, 2. gudho(di)+s-goi *he habitually causes it to snow*, 3. als'du(gi)+s-goi *it habitually opens itself*, 4. zilogan(ohə)+s-goi *I habitually hoe the ground.* By comparing this set with the first group of examples we note the following changes: 1. l is replaced by h before -goi (l + g → h, see stem class III, **4.5**). 2: n is replaced by s before -goi (-di alternates with -dha, see **5.1.2.1.2**). 3. s is not replaced before -goi.

4. zero is replaced by s before -goi. (n of -ohn is replaced by ə before s). It is now clear that non-final suffixes exhibit alternating consonants before V-initial and before G-initial suffixes in a manner similar to stem formative consonant alternants of **4.5.**[29] In **4.5** an indefinite number of phoneme sequences which reveal equivalent T alternants are grouped together. There the loss of some T consonants and certain suffixial replacements indicated a morpheme ACTIVE stem. In the present group only a few forms exhibit equivalent alternations. Alternating consonants are never lost. Hence it appears that consonant alternants (referred to as C consonants hereafter) in non-final suffixes are regular intrusive elements. The C consonant in each case is defined by the preceding morpheme. The alternant forms of C consonants are defined by the V- and G-suffixes which follow.

5.1.2.2.1. The procedure here is to list non-final suffixes with C alternants. Non-final suffixes exhibiting equivalent C alternants will be grouped together.

(1) -sda- *causative, accidental* has the form -sdha- followed by n before V-suffixes and the form -sdi-followed by s before G-suffixes. -ga *present action* is replaced by -ha.

(2) -ohn- *completive* is followed by ø before V-suffixes. n is replaced by ə before s when followed by G-suffixes.

(3) -i- *movement*[30] which has the form -ə- before -əgi *aorist*, -e *dative*, -oi *indefinite past*, and the form -e- before -i *future*, -əhe *future imperative*, -ə *potential*, and the form -i- elsewhere is followed by s before V- and G-suffixes with the following conditions: s is replaced by n before -ə *potential*, s is replaced by ø before -do *non-purposive*, g of G-suffixes is replaced by ø.

(3a) The form -di- *inchoative* which follows -i- *movement* without an intrusive C alternant is followed by the same C alternants as -i- *movement*. -di- *inchoative* is found, however, before only a few final suffixes.

(4) -e- *intermittent* which has the form -ə- before -əgi *aorist*, -i- *future*, -oi- *indefinite past*, and -e- elsewhere is followed by s before V-suffixes and by ø before G-suffixes with the following conditions: s is replaced by l before -e- *dative*, s is replaced by n before -ə *potential*, g is replaced by ø in G-suffix -gəgi *imperfect*. ø before G-suffixes in this case is replaced by s.

(5) -gi- *reversive* is followed by s before V- and G-suffixes with the following conditions: s is replaced by ø before -e- *dative*; -ga *present action* is replaced by -a.

(6) -o- *repetitive* which follows -hi- *purposive* is followed by ø before V-suffixes and by s before G-suffixes. -ga *present action* is replaced by -a.

(7) -e- *dative*, (8) -do- *non-purposive*, (9) -hi- *purposive*. Morphemes (7), (8), and (9) are followed by l before V-suffixes and by h before G-suffixes, i.e. h replaced g of G-suffixes, with the following conditions: in morpheme (8) -do- *non-purposive* l is replaced by s before -e- *dative*.

5.1.2.2.2. Chart of C alternants occurring with non-final suffixes. As in **4.5.1** where T alternants were listed in chart form, it will also be convenient here to summarize the above statements in a simple chart. Forms occurring at the right of C alternants are the special replacements mentioned above. It will be noted that a comparison of chart **5.1.2.2.2** with the chart in **4.5.1** reveals similar groups of T and C alternants in the following manner: [(1)-IV-B], [(2)-VI-B], [(3), (5)-I-A, B, C], [(4)-II-B], [(6)-VI-A], [(7), (8), (9)-III-A, B, C].

[29] It will be noted here, however, that additional V-suffixes occur which could not be listed as initial position suffixes in **4.4.1.** All forms in the present section occur after an initial suffix.

[30] In this analysis, -i- meaning *future* and *movement* are considered as one morpheme. Therefore distributional statements of -i- will indicate alternants of this form as occurring next to each other. See **5.2.4.**

These non-final suffixes	Have these C supernants before V-suffixes	And these C alternants before G-suffixes
(1) -sda-	n	s ga → ha
(2) -ohn-	ø	s
(3) -i-	s + e → n + e s + do → ø + do	s g → ø
(4) -e-	s + e → l + e s + ə → n + ə	ø gəgi → s + əgi
(5) -gi-	s s + e → ø + e	s ga → a
(6) -o-	ø	s ga → a
(7) -e-		
(8) -do-	l	h l + g → h
(9) -hi-		

5.1.2.2.3. Other forms after non-final suffixes. The statements in **5.1.2.2.1** served to indicate the C alternants which occur before V- and G-suffixes. Alternant forms of V- and G-suffixes were listed by the special replacements indicated in the chart There remains to be listed those suffixes which are not preceded by a C alternant. These are -ga and the morphemes with initial -sd.[31]

The morpheme -ga has six alternant forms after the nine non-final suffixes. After each of the nine non-final suffixes is listed the appropriate -ga alternant: (1), (2), and (8) *a*,[32] (3) *u*ga, (4) and (9) ga, (5) ø, (6) za, (7) i.

(1) zisdəgósdohd-a *I accidentally scraped it*, ziwisdóhd-a *I planted it in the wrong manner*, zisgwaləәnisdohd-a *I accidentally struck him in the head with a long object*, a'sdedaliyósdohd-a *he accidentally replaced it.*

(2) ald'uwoohn-a *she just finished combing her hair*, galogédohn-a *he just finished clearing the ground*, alulánohn-a *she just finished giving birth.*

(8) yed-a *he would walk about*, cf. uwedo +l-əgi *he did walk about*, hwed-a *you just walk about!* yidagw'gilóelid-a *he would go about washing* (*F*) *for me.*

[31] See **5.1.2.1.1** and **5.1.2.1.2** for a list of -ga and -sd initial morpheme alternants in initial suffix position.

[32] A line under a vowel indicates that the vowel preceding the -ga alternant is lost.

(3) dindáyos-uga *let's you and I go surrender*, dindáyohisel-uga *let's you and I go surrender to them*, agwasdhanel-uga *he just took it off to water for me.*

(4) dandáyose-ga *they just surrendered one after the other*, hisəgwale-ga *you roll it intermittently!*

(9) yidegógi'nogíelhili-ga *he would purpose to come and sing for us*, dogi'nogielhili-ga *he plans to sing for us.*

(5) yigəgi-ø *I would unravel it*, həgi-ø *you unravel it!* hodagi-ø *you put out the fire!* godagi-ø *I just put out the fire.*

(6) dhisgwelhilo-za *you hit him in the head repeatedly with your fists!* dasgədənhilo-za *he just hit him in the shins repeatedly with a long object.*

(7) hiis-i *kill it for him!* agwodas-i *he just made the fire for me*, dsg'iwis-i *you plant them for me.*

Morphemes with initial -sd have alternants in which s is replaced by h after non-final suffixes (1) and (7). uduli uhgiehdíyi *he wants to remove* (*F*) *from the water for her*, uduli zuwónihisohne-hdíyi *he wants to finish talking to them*, uls'golhdánelə digwadayohise-hdíyi *he gave him permission to surrender to me*, uduli uyosdo-hdíyi *he wants to shoot it accidentally*, i.e. *make it appear as an accident.*

5.1.2.2.4. Examples of non-final suffixes followed by C alternants. Before proceeding to state the distributional relations of the members of class F it will be convenient to list utterances which exhibit non-final suffixes followed by C alternants. A very great amount of space would be required to indicate each V- and G-suffix after the nine non-final suffixes. The procedure here will be essentially the same as that employed in **4.5.1.1.** Each of the nine non-final suffix forms will be given with a sample of V- and G-suffixes. It will be noted that more than one non-final suffix may occur in a single form.[33] Each non-final suffix will be separ-

[33] See **5.2** passim for a complete statement of class F distributional relations.

ated from the following C alternant by the + sign. The non-final suffix forms are listed in **5.1.2.2.1.** after parenthetic numbers (1) through (9). Thus according to the statements in **5.1.2.2.1** the form dezs'du-gí-sdóda+n-e+l-i-dó+həgi *he was going about opening them for you in the wrong manner*, may be read as follows: suffix (5) -gi- *reversive* is followed by (1) -sdoda-; -sdoda- *accidental* is followed by n before suffix (7) *dative;* -e- *dative* is followed by 1 before suffix (3) -i-; -i- *movement* is followed directly by suffix (8) -do-; -do- *non-purposive* is followed by h before final G-suffix -gəgi *imperfect.*[34] It will be noted in the examples that the length of a verb utterance depends on the number of V-suffixes which occur since G-suffixes are non-productive, i.e. occur for the most part in pre / # / position.

(1) agwənh-sdodha+n-əgi *I hit it accidentally*, yigəgə́ni-sdodhá+n-ə *if I hit you accidentally*, dandáyohi-sdodha+n-i-do+hoi *they habitually go about surrendering by mistake*, agan-hdi+ha *he is causing it to rain*, gohə-sdi+s-gesdi *he will be burning it up* (lit. *causing it to burn*), gudho-hdi+s-gei *I heard that he caused it to snow*, gudho-hdi+s-gə́i *while he was causing it to snow*, dayo-sdha-n-i-do+hoi *he always goes about shooting it accidentally*, gadídha-sdí+s-goi *I habitually use it to drink with*, nudídha-sdha+n-ói *he had used it to drink with*, sgwudho-da+n-e+l-əhə *you cause it to snow for me after awhile!* nuwudho-dha+n-ói *he had already caused it to snow*, ayó-sdohd-a *he just now shot him accidentally*, yagudhl-da+n-é+l-ə *if you cause it to snow for me*, sgwudho-da-s-i *cause it to snow for me now!* uyo-sdodha+n-i-di *he is about to shoot him by mistake* cf. uyo-sdha+n-i-di, duwelh-sdódha+n-i-dí+s-əgi *he was about to feed it in the wrong way but didn't.*

(2) gawonis-ohn-a *he is through speaking*, duwonis-ohn+ø-e+l-i-di *he is about finished speaking for them*, uwudhan-óhn+ø-i-di *it is about to stop snowing*, gudhan-ohə+s-ga *the snow is stopping*, uwudhan-ohn+ø-i-di+s-əgi *it was about to stop snowing but didn't*, zha yigadídhan+óhə+s-ga *I am not through drinking*, ulíənh-ohn+ø-ei *I heard that he finished beating it*, yizə́gilo-óhn+ø-ə *if you finish washing* (*F*), nuwo'dan-ohn-ø+ói *he had already finished building the fire*, zo'dan-óhn+ø-ei-zu *did you finish building the fire?* uwo'dan-óhn+ø-əgi *he did finish building a fire*, dazíg-ohn+ø+i *I will finish eating* (*R*), unəd ziyadidhá-ohn+ø-e+ha *I am drinking up all his milk*, agwag-ohə-+sdá+n-e+ha *he is burning it all up for me.*

(3) dedándayos-e+s-i *they will go off and give up*, osdisdáwad-ó+s-əgi *another and I followed him*, osdisdawad-i+s-gəgi, *another and I were following him*, dunisdawad-ó+s-ei *I heard that they followed him*, sgs'dawad-é+s-əhə *you follow me after awhile*, u'sdawad-i+ø-do+hoi *he just followed him about*, hi'-sdawad-í+s-gesdi *you will be following him*, ini'sdawad-ó+s-əgi *you and I followed him*, dayo'sdawad-e+s-i *another and I will follow.*

(4) dezid-e+ø-ga *I am putting* (*L*) *in a row*, gedin-e+ø-ga *I am setting out posts in a row*, agwe'din-ə+s-əgi *I did set out posts in a row*, he'din-é+s-əhə *you set out posts in a row after awhile*, uwe'din-ó+s-i-di *he is about to put out posts in a row*, nuwe'din-ə+s-ói *he had already set out posts in a row*, ge'din-e+ø-goi *he habitually puts out posts in a row*, hi'səgwal-e+ø-ga *roll it by intervals!* yigwe'-din-é+n-ə *if I set out posts in a row.*

(5) degánuwa-gí+s-gəgi *I was undressing*, dagwa'nuwa-gí+s-əgi *I undressed*, déha'-nuwa-gí+s-əhə *you undress later!* osdu-gi+ø-e+l-əgi *another and I opened it for him*, gə-gi+s-i+s-øesdi *she will be going along unraveling it*, dagə-gi+ø-e+l-i *I will unravel it for you*, gə-gi+s-goi *I habitually unravel it*, yizə-gí+s-ə *if you unravel it.*

(6) Form (6) is dependent upon form (9). dasgwel-hi+l-o+s-gəgi *he was beating him repeatedly with his fists*, dasgədən-hi+l-o-a *he is hitting him repeatedly in the shins with* (*L*), asgwalən-hi+l-o-a *he hits him repeatedly in the head with* (*L*), dadə́sgwel-hi+l-o+ø-i

[34] Where C alternant h replaces g of G-suffixes no hyphen will be indicated to separate h from the suffix.

he will hit him repeatedly in the head with his fists, dusgwel-hi+l-o+ø-əgi *he did hit him repeatedly in the head with his fists*, dasgwel-hi+l-ó+s-goi *he hits him habitually and repeatedly in the head with his fists*, galíən-hi+l-o-za *he just did beat him repeatedly*, dasgwel-hi+l-o+s-gesdi *he will be beating him repeatedly in the head with his fists*, yidusgwel-hi+l-o+ø-ə *if he beats him repeatedly in the head with his fists*, déhisgwel-hi+l-ó+ø-əhə *you beat him repeatedly in the head with your fists!*

(7) doginogí-e+ha *he is singing for another and me*, zísdu-gi-sdóda+n-é+həgi *I was opening it for him by mistake*, dezs'du-gi-sdóda+n-é+l-i-dó+hei *I heard that he went about opening doors for you by mistake*, hodán-e+l-əhə *you build a fire for him after awhile!* hodan-é+hesdi *you be building a fire for him*, sogwil agwadídha-sdha+n-e+l-əgi *he took the horse to water for me.*

(8)[35] uwe-do+l-əgi *he just went here and there*, doye-do+l-i *he will just go here and there*, ye-d-a (do + a) *he would go here and there*, degawónihis-e+l-i-do+hoi *he goes about making speeches for them*, degawónihis-e+l-i-do+hei *I heard that he went about making speeches for them*, sdəsdu-gí-sdoda+n-e+l-i-dó+h-əgi *another and I used to go about opening them for you by mistake*, yagwads'-i-dó+l-ə *if I just ran here and there*, hads'-i-do+hesdi *you just be running here and there!* aganhan-i-do+hoi *it habitually rains here and there.*

(9) dage'din-hi+l-i *he is coming for the purpose of setting out posts*, degogi'nogil-hi+l-əgi *they came for the purpose of singing for us*, de'ganogí-e+l-hi+l-i-dó+hoi *he purposes to go about singing all the time for them*, nidu'nogi-e+l-hi+l-ói *he had already purposed to sing for them*, désginogi-e+l-hi+l-əhə *plan to sing for me after awhile*, yigiwónihis-e+l-hí+l-ə *he would plan to make a speech for us*, igiwónihis-e+l-hi+l-i-dí+s-əgi *he was about to plan to make a speech for us but didn't.*

[35] The stem of uwedolegi is analyzed as stem vowel a + i *movement* = -e-.

5.2. It is possible to state the additive bound morpheme sequences of a language in various manners. A common procedure is to inspect many utterances and assign each morpheme a dependent position relative to other morphemes. Thus each morpheme (group of morphemes if mutually exclusive) are said to occur in relative orders. Another procedure seeks to state the substitutional equivalences found among many morphemes. In this procedure one matches various morphemes in a series of controlled environments. Those forms which are found to occur in partially identical distributions are treated as classes of mutually substitutable forms.

The first procedure fails to indicate the substitutions which occur in an utterance. Hence a full accounting of the sequences would require a listing of each morpheme sequence. The substitution statements of the second procedure are conveniently convertible into a morpheme sequence diagram. However such diagrams are often complex when dealing with the substitutional possibilities of many forms. It is found, for Cherokee at least, that morpheme relative order numbers may be utilized in sequence formulae to state substitutions in morpheme sequences.

5.2.1. Present method of stating suffix distributions. Morphemes are assigned numbers which indicate relative orders. Morphemes with the same number at the left of the decimal occur in the same relative order and are mutually exclusive, e.g. 10.9, 10.8, 10.7, and so on. Distributional statements are given as formulaic sequences of relative order numbers. We state all possible morpheme sequences which occur before successively lower numbered morphemes. That is, we begin by stating the sequences which occur before the highest numbered morpheme. Each succeeding formula states the sequences occurring before each lower numbered morpheme. Since we begin by stating the sequences preceding the highest numbered form it is not necessary to state

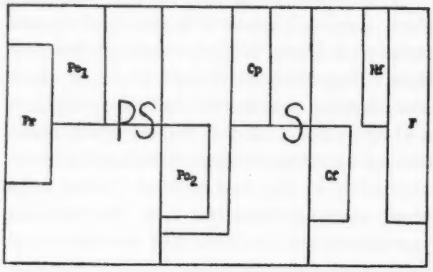
the morpheme sequences which may follow any form. These statements are automatic as a result of the procedure. The morphemes following any numbered form are found by reading from the last to the first. The order of morphemes following any given form is found by reading the immediately preceding formula.

5.2.2. Morpheme list with relative order numbers.[35] This section lists the class F morphemes with their accompanying relative order numbers. Morphemes are listed with the highest number first. 13. -zu *interrogative*, 12. -gwo *continuative*, 11. -ei *reported past*, 10.9 -əgi *aorist*, 10.8 -gesdi *stative future*, 10.7 -ga *present action*, 10.6 -ə *potential*, 10.5 -goi *habituative*, 10.4 -gəgi *imperfect*, 10.3 -gəi *progressive past*, 10.2 -ga *recent past*, *imperative*, *conditional*, 10.1 -sdiyi *infinitive*, 10.0 -əhə *future imperative*, 9.1 -do *non-purposive*, 9.0 -di *inchoative*, 8. -i *future*, *movement*, 7.2 -əhi *indefinite past*, 7.1 -oi *perfect past*, 7.0 -o *repetitive*, 6. -hi *purposive*, 5. -e *dative*, 4. -ohn *completive*, 3. -e *intermittent*, 2. -sda *accidental*, *equivocal*, *causative*, *instrumental*, 1. -gi *reversive*.

[35] For the particular alternants of each of these see **5.1.** For the most part the text material in the data does not supply the suffixial elaboration presented here. However, many of the complex suffixial sequences were found in text materials. Special eliciting was done in many cases to determine substitutions.

6. A summary statement of the verb structure is given in a morpheme sequence diagram. Pr = prepronominal, Ps = subject pronominal, Po = object pronominal, Cp = pre-stem classificatory element, S = stem, Cf = post-stem classificatory element, Nf = non-final suffix, F = final suffix. Po is indicated as Po_1 when the object pronominal precedes the subject. Po_2 indicates object pronominal following the subject pronominal.

Any line drawn from the left of the diagram to the right without crossing any horizontal line and without going to the left will pass through a sequence defined as a verb. For a discussion of the ordered arrangements within each column see the individual sections.



NOTES AND REVIEWS

'Mother Language' in Hidatsa

This is to report one bit of the corpus on Hidatsa collected by the authors of this paper. What is here reported is an incidental part of the work done by them at the 1953 Linguistic Institute where the task of phonemicizing and morphemicizing Hidatsa was carried on beyond the point at which Harris and Voegelin left off fifteen years ago.[1] The present report will have some bearing on the phonemic and morphophonemic analysis of Hidatsa; more of this in conclusion.

The 'mother language' which we report for one specific language is discussed, after the examples, as part of a generally recognized language behavior—namely, that an adult speaker may modify his manner of speech for the benefit of children or of strangers struggling to acquire the language. These modifications, in the case of Hidatsa 'mother language', may be roughly defined as speech variants intended to serve as models for children. We could just as reasonably hold to a perspective in which these variants would be called 'mother speech' (Zellig Harris' preferred term) as to a self-contained system kind of perspective. For the latter, 'mother language' (by analogy to Leopold's 'child language') seems more appropriate than 'mother speech'.

We now give examples of 'mother language'; some of these examples were transcribed directly from the lips of the informant, some from tape; they are cited below without change. The same examples, and many others, were also spoken into a microphone and remain on tape; in fact, they were twice recorded on two separate tapes in order to obtain possible variants. We have not yet completed our study based on playback from these tapes—nor from dozens of other tapes of the 'common language'. At this juncture in our study of Hidatsa we still use, as a general guide to the phonetic values of the orthography, the published summary of Hidatsa sounds and phonemes (fn. 1, above; pp. 183–4); but for purposes of this paper we write out the allophones of the phonemic semivowels w and r. The three vowel lengths discussed in the published summary are here represented orthographically (1) without following diacritic for short or single mora vowel; (2) with following raised period for long or two morae vowel—such long vowels are generally stressed and level toned (marked with acute accent over vowel); (3) with following colon for over-long or three morae vowel—such over-long vowels are always stressed and falling toned (marked by grave accent over vowel).

Exemplification is presented from the point of view of 'mother language' in contrast to the 'common language' of the adult Hidatsa; both are in citation form. The first form of each pair cited is given in square brackets—this is the 'mother language'; the second or following form in each instance is given in parentheses—this is the 'common language'.

Examples of strong final h appear commonly in 'mother language'. [mi·ríh], (mirí) *water*; ['ca·'ka·káh], (caká·ka) *chicken*; ['a·ših'keh], ('a·šíhke) *spoon*.

Hidatsa forms are here printed with apostrophe where vertical stress mark, meaning stress on following vowel, was intended; please read apostrophe as secondary stress

[1] Zellig Harris and C. F. Voegelin, Hidatsa texts—Collected by Robert H. Lowie—with grammatical Notes and Phonograph Transcriptions (PRS of Indiana Historical Society 1.173–239 [1939]). For help in the 1953 Linguistic Institute, for additional materials and for useful suggestions, we are indebted to our Hidatsa informant, Mrs. Margaret Haven; to our colleagues at the Institute, Harry Hoijer, H. J. Uldall, Robert A. Hall, Jr., and to John Mickey; to all members of the Field Methods seminar for stimulating questions; and to Morris Swadesh who read a preliminary draft of this paper and made suggestions on presentation which we have incorporated in this final draft.

diacritic. (Primary stress is marked by acute accent over vowel.)

Examples show lengthened vowel more often than change in any other single feature. As a rule, lengthened vowel appears in combination with some other change, as with strong final h in the preceding instance; but the following show no other change than lengthened vowel—with possible attendant change in stress. [ma·kúh], (makúh) *stay!*; ['na·'wa·he·ʔéh], ('na·wahéʔe) *do you want it?*; ['na·'ri·tíʔih], (narí·tiʔi) *are you hungry?*; ['ma·ʔíwa'rɛ·h'ke], (maʔíwa'reh'ke) *toy*; ['ma·h'tihké], (máhtih'ke) *toy that runs like boat or car*; ['mi·t·éh], (mit·éh) *cow*; ['ca·'ka·káh], (caká·ka) *chicken*.

The preceding paragraph shows examples of long vowels (two morae) and short vowels (one mora). We now show examples in which an overlong vowel (marked by colon after v) bears falling tone (marked by acute accent over v) in the 'mother language'; and we entertain the possibility that this overlong vowel (v̋:) has the value of three morae. Such phonetically overlong vowels, whatever their phonemic value, appear matched in the following examples by the regular long stressed, two morae vowel (v́·) in adult Hidatsa. [hù:'kah], (hú·kah) *come here!*; [kà:ruxi'ʔɛ·c], (ká·ruxi'ʔɛ·c) *old woman*; ['ma·š·ì:ʔa·tic], (maší·ʔatic) *frame house*; [ì:cihka'wa· + 'hiriš], (í·cihkawa·hi'riš) *Cayote Chief;* [à:k'ti·š], (á·ktiš) *peep*; [awà:'t·i], (awá·t·i) *river*; [mi·hà:'wi·htic], (mihá·wihtic) *I'm sleepy*.

Examples show (w) appearing as [b], and (r) as [d], characteristically as free variants. All 'mother language' examples are in citation form, but in repeating the citation the informant would see-saw between, for example, the bracketed form for *I'm sleepy*, (immediately above) and [mihá·bihti·c] which, incidentally shows no change in vowel length, only change to [b] from the (w) in (mihá·wihtic). But compare [ma·dì:tic], (marí·tic) *I'm hungry*; [ma·dè:c], (maré·c) *I'll go*; ['mi·dé·h], (miréh) *door*; ['bi·dá·'pah], (mirá·pa) *tea*; ['birabéʔ'ruc·a'ru], (mirawéʔ'ruc·a'ru) *sleigh*.

Examples of uncontracted vowel cluster, with the two vowels separated by a glottal stop appear both in 'mother language' and in 'common language'. In normal adult usage the two vowels would contract, as shown in mé·xihtic below; but in very slow or distinct citation form—and in morphophonemic analysis—the two separate vowels would obtain, as shown in the final form. [ma·ʔe·xí·htic], (mé·xihtic ~ maʔe·xíhtic) *I want to go to the toilet*; ['bi·ri + 'i·'ka·ka + éhɛ], ('miri + i'ka·kehé) *wagon*; ['i·'ta·h'kahi'ʔɛ·c], (itáhka'he·c) *old man*.

After the fashion of the preceding group of examples, another set appears with loss of glottal stop—but with preservation of all vowels involved; the preserved vowels appear sometimes in their full mora value, sometimes with loss of one mora of length, generally from the second vowel of the cluster. ['ma·ʔa'ruh·ap·í], (ma·aruh·apí) *bed*; ['ma·ʔ'i·ʔ'a·ká·ki], (ma·ʔ'i·aká·ki) *chair*; ['ma·ʔi·kitó·'pa], (ma·ikitó·pa) *table*; [ma·ʔih'ki·'ka], (ma'ihki·ka) *window*.

One of the junctures recently recorded for Hidatsa—the so-called plus-juncture written with a plus mark after vowels within a 'word' or following a 'word'—appears more frequently in 'mother language' than in adult Hidatsa. Half of our half dozen examples show loss of plus juncture; the other half show preservation of plus juncture in both usages. This exemplification does not intend to imply that the sample is typical; we expect to find, upon close listening to texts recorded on tape, a good deal of variation in adult usage. ['ma· + c·iwíra], (ma·c·iwíra) *plate*; ['ma· + oku'c·íʔ + 'rih'kɛ], (ma·okucí·rihke) *oranges*; [u + 'ah'ta], (úahta) *examine it*; ['a·'ti·cúa + 'hɛ·c], (aticúa + 'hɛ·c) *tipi*; ['bi·ri + 'i·'ka·ka + éhɛ], ('miri + i'ka·kẹhé) *wagon*; ['ma· + 'i·pátc·a·dih], (ma + ipác·a·ti) *fork*.

Examples show allophones associated with contour medial, as -r-, appearing at the

onset of a citation form, and hence in contour initial. (A contour is the stretch of utterance between certain junctures.) [rí·hà:t]-(nihá·t) *go to sleep*; ['ri·'ʔu·cíh], (ní·u'ci) *Are you thirsty?*

Haplologic loss of occasional phoneme sequences, in 'mother language' (as -hú· + - and -hor-) rarely occur in the faster 'common language'. ['atiwuhú· + 'ma·arurù:há], (atiwuwa·arurú·ha) *carpet*; ['ma· + 'oku-'pah + horu'wih'kɛ], (ma·okupá + awih'ke) *apple*.

Examples of fortis consonants in 'mother language' corresponding to lenis consonants in 'common language' are dubious, since the former style of speech is slow and emphatic and could, possibly, fail to provide a contrast within our corpus [má·t·awa·pe], (mátawa·pe) *my darling*; ['mah·á], (mahá) *spring*; ['ma·ʔa'ruh·ap·í], (ma·a'ruh·apí) *bed*; ['ma·š·ì:ʔa·tic], (mašt·ʔatic) *frame house*; ['a·'wa·t'tic], ('awatíc) *lodge*.

Additional examples now follow in which the fortis consonants are exaggerated affricates in 'mother language' in which both the stop on-glide and the sibilant off-glide are long—and about equally long. Such [tc·] are matched mostly with fortis c·, but sometimes with lenis c in adult usage. ['ma·t'c·ɛ·c], (mac·é·c) *man*; ['ma·t'ce·ruwácaš], (ma'ce·ruwácaš) *Lone Man*; ['ma· + 'i·pátc·a·dih], (ma + ipác·a·ti) *fork*; ['mɛ'ʔɛt'·c·ih], (mé·c·i) *knife*; ['i·t'c·ù:'waška'tih], (i·cú·waška'ti) *barn*; ['ma·t'c·u·'tapa], (má·cu·'tapa) *June berries*.

In adult usage, every word includes a major stress; but in 'mother language' occasional words are heard in which all stresses are minor. Major stresses are written with accent marks over the vowel (v̀: for stress with falling tone, and v́· for stress with level tone). The vowel under major stress is more prominent than other stressed vowels in the same word. Minor stresses are written with vertical stress, or with zero—i.e. no stress mark at all. Vowels in the minor group may be less prominent than other stressed vowels (indicated by absence of stress diacritic); they may be equal in prominence to other minor stressed vowels in the same 'word' (indicated by a vertical stress mark before the vowel or before the opening consonant of the vowel syllable). ['a·'wa·t'tic], ('awat·íc) *lodge*; ['mɛ'ʔɛt'·c·ih], (mé·c·i) *knife*; ['a·'ših'kɛh], ('a·šíhke) *spoon*; ['mah'ku], (máhku) *cottonwood trees*; ['na'k·uc], (nak·úc) *swing it!*

Some examples appear to be phonemically identical in 'mother language' and in 'common language' (but the latter are rattled off at high speed; the former are dragged or deliberate). Some examples are near-identical —they show merely different distributions between minor and major stresses (defined in the preceding paragraph). ['ni·š·áp·], (ni·š·áp·) *hurry up*; ['kuhkác], ('kuhkác) *it's ready*; [miš·pá], (miš·pá) *ash*; [míraʔ'ih], (míraʔ'ih) *elm*; [ma't·a·'pu·ší], (matá·pu·ši) *birch*.

In conclusion, we have four explanations to make which bear on the choice of 'mother language' as a technical term; on the relationship of this to 'child language' and to 'bilingualism'; and on the homogeneity of 'mother language' and 'common language'.

First, the 'mother language' corpus here discussed is concerned almost entirely with what the child hears rather than what the child says (in the sense that Leonard Bloomfield uses these terms: "Almost nothing is known because observers report what the child says, but not what it has heard; so Stern; Preyer; Bühler."[2]). We report specifically on one genre of Hidatsa which the child has heard—and not on what the child says. To say 'baby talk' for our Hidatsa genre might imply that the child more or less consistently uses the model which his mother presents to him—as with us, when both parents and children, in talking to one another, may use baby talk up to a certain point. Beyond this the parental generation

[2] Leonard Bloomfield, Language (New York, 1933), p. 512 (**2.5.**).

may revert to occasional forms for sentimental reasons; we have had no suggestion of a sentimental component in Hidatsa 'mother language'. For us (English speakers), 'baby talk' enters into many symbolisms; it goes beyond the nursery into the language of courtship, for example. For the Hidatsa, 'mother language' is restricted to its primary function; it is a mere fraction, a small fraction of Leopold's 'presentation' (words spoken with the deliberate intention of becoming a model for the child's speech, words spoken in emphatic isolation).[3] On the other hand, as in our 'baby talk', the Hidatsa child is given forms in 'mother language' which are not, strictly speaking, part of the corpus current among adults in the native community. Hence this 'mother language' is less than a really good model for the learning child; it must contribute to the tensions which all children experience from having acquired non-adult habits of speaking their native language at any early stage—early and hence deep-rooted habits which need later revision.

Second, since the 'mother language' corpus is part of the Hidatsa native language it is by definition not part of the 'other language' oportunities which are available to Hidatsa children, all of whom are bilingual or multilingual. Like every other acculturated Indian in the United States, the Hidatsa child hears English when he is learning his native language; but he also hears another Siouan language, Mandan, as well as a Caddoan language, Arikara. Hidatsa, Mandan and Arikara were formerly spoken in neighboring villages on the banks of the Upper Missouri; the three distinct language villages have merged into one community, so far as interpersonal relations are concerned, and various combinations of bilingualism between these Indian languages has become common. As a result of intertribal marriages and divorces, the children of one of our informants were separated so that in consequence only one spoke Hidatsa (the one who remained with her Hidatsa father); the others spoke either Mandan or Arikara, but all were bilingual by the time they reached school—they spoke English as a second language, and were said to have an 'understanding' knowledge of some 'words' of the other Indian languages but probably not a speaking knowledge.

One of the problems in Uriel Weinreich's Languages in Contact (New York, 1953; pp. 86–7) is stated as flowing from three conditions: (1) If there be much intermarriage between groups in contact, and (2) if the children of such marriages are raised bilingually, and (3) if these children have difficulties with the grammars of both languages, then the problem is whether one can state a direct connection [all relevant conditions contained within the terms] between intermarriage and proneness to grammatical interference. The latter, in Hidatsa, might be influenced by 'mother language'—outside the terms of intermarriage; i.e., the 'mother language' may influence or interfere with the child's learning of adult Hidatsa—as may one of the 'other languages'.

We distinguish between the two; but the Hidatsa child might well make a plausible, though false, parallel between 'mother language' and 'other language'—certainly, in a community in which one sibling may speak a language which differs from another sibling's language as much as English differs from French (or even English from Turkish), it would be interesting to see if an occasional child were to regard the 'mother language' corpus within Hidatsa as still another Indian language. In point of fact, however, Hidatsa 'mother language' differs little from common adult usage, as the data above show.

Third, how is the Hidatsa 'mother language' corpus related to stages of development in Hidatsa 'child language'? As already mentioned, we do not include 'child language' in our present report; however, the mother who gave us our data on 'mother

[3] Werner F. Leopold, Speech Development of a Bilingual Child, Volume 1 (Evanston and Chicago, 1939; p. 9).

language' gave us a hint: she mimicked her small child repeating or imitating or echoing her model. This hint is impossible to interpret, since the suggested reproduction differed from the mother's model only in being said at a higher pitch. According to our informant, the child imitates the Hidatsa 'mother language' perfectly rather than imperfectly; the imperfect imitation is expectable in other areas of the 'little language'. (Much would of course depend on the age of the child.) Its effect on the speech of the child, which we hope to check in future, would presumably not be relevant to any developmental scheme of the sort reported by Roman Jacobson, corrected by Leopold, and summarized by Velten.[4] That is to say, the addition of 'mother language' to more common ways of speaking would not, we predict, affect the contrasts which presumably appear in the speech of all Hidatsa children—of those exposed as well as of those unexposed to 'mother language'.

The effect of 'mother language' on 'child language' would, rather, be classifiable into Jespersen's third stage—certainly not into either of his first two stages—the third stage is 'talking time', with an important bifurcation from the point of view of Hidatsa 'mother language', namely (a) the 'little language' talking time, and (b) the 'common language of the community' talking time.[5]

We will be concerned in future field work observations with the stage in which the child shows some fluctuation between the 'little language' (the individualistic adaptations which a particular child makes to a restricted number of models) and the language of the community (adaptations which all individuals learn to make to many models in the community). It will be in the 'little language' that the effects, if any, of the 'mother language' will be reflected. The latter, so far as the present report goes, is a model said to be uniform from mother to mother, and available to any child mothered in this way.

Fourth, assuming that the 'mother language' is without important variations, can we say the same for the 'common language'? Quite aside from our impression (from hearing a dozen Hidatsa speakers) that this is indeed so, we have two bodies of Hidatsa transcriptions to compare, each given chiefly by a different informant, one a man (Charley Snow) recorded fifteen years ago, the other a woman (Margaret Haven) recorded in the summer of 1953. The record of fifteen years ago was written phonemically (for example, [w] rather than [m ~ b] initially, and so on), thus covering up possible allophonic variations between the speech of our middle aged informants. We can make a preliminary statement, to be checked by listening to our old phonograph records of the male informant, that the differences between the speech of the male and female informant lie precisely in the choice of a few allophones, and in the placement of juncture; Mr. Snow would give [m] where Mrs. Haven gave [m] or [b] or even [w]. This suggests that allophones are substitutable in terms of position so far as an individual is concerned, but vary freely between individuals or perhaps between the sexes; it might even be worth while to look for a 'father language'. Stylistic differences in syntax and morphology between conversational and narrative Hidatsa are pointed out in a preceding paper (fn. 1, above; pp. 231–2).

Our informant, Mrs. Haven, herself a mother who spoke 'mother language' to her children, said (apropos of there being different ways of talking Hidatsa): "About the only time you ever talk slow is to your child when they are first learning how to talk."[6]

[4] H. V. Velten, Lg. 25. 215–9 (1949).

[5] Otto Jespersen, Language (New York, 1923); pp. 103–88.

[6] The same informant was consistent in emphasizing the seriousness of getting the child from a non-talking stage to an adult talking stage —with a minimization of an intermediate 'baby talk'; she said (in another text) "We don't like baby talk . . . when they talk, we want them to talk just like us, right from the start."

In trying to teach the graduate students and the professors at the Linguistic Institute she was frequently reminded of her earlier experience, when her children were first learning how to talk. For example, if we were to ask for repetition of such forms as aru?ó·hkaše·c *I will pour it back in*, and aru?óhkaše·c *he will pour it back in*, just to be sure we had heard correctly—in this instance, that the difference between the 1st and 3rd person was a matter of vocalic morae—then in one of her repetitions, our motherly informant would give us the first form in question as though we were children: aru?ówohkaše·c *I will pour it back in* which, in this and in other instances, either coincides with or resembles the morphophonemic formulae which we are tentatively setting up for Hidatsa.

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THE ACLS LANGUAGE PROGRAM

THE AMERICAN COUNCIL OF LEARNED SOCIETIES, through its Committee on the Language Program, is directly or indirectly responsible for encouraging, planning, and guiding many of the projects in which American linguists are currently engaged. The members of this Committee are appointed by the Board of Directors of the ACLS; at present they are Albert H. Marckwardt (chn.), Norman A. McQuown (secy.), Bernard Bloch, John B. Carroll, Stephen Freeman, Archibald A. Hill, Martin Joos, and Henry Lee Smith Jr., with Mortimer Graves as ACLS liaison officer and John Kepke as business manager. The following statement sets forth the Committee's view of the situation in which it works and of its own specific duties.

LANGUAGE STUDY AND AMERICAN EDUCATION

1. *The need for competence in languages.* The past fifty years have witnessed the sudden transformation of the United States from an insular and continental to a world power. To quote from an earlier publication of this organization.[1]

> The product of American industry spreads all over the world. Wherever there is a paved road there is an American automobile; American oil is produced wherever there is oil and used wherever oil is used. American banks have branches and connections in every significant foreign city. Hardly a remote corner of the globe but knows the American missionary, the American school, American generosity. . . . Half the world's trains run on American rails. No region is too remote to be the concern of American diplomacy. And all too frequently American armed forces must ply their trade in lands and among peoples whose very names would have been unknown to an earlier generation.
>
> One would suppose accordingly that many Americans would be equipped with scientific and detailed understanding of these multifarious cultures, that the United States would lead the world in the study of foreign lands no matter how distant, that no society could be named for which there was not an American expert, and that the American academic structure would reflect this world perspective. Unfortunately, a true picture is almost the reverse of this. . . . Study of many culturally and strategically important peoples finds no place whatever in American universities and colleges.

The importance of language study in meeting this situation is clear. Consider, for example, that Asian thought alone is published in about twenty different languages. To understand Asia, the United States needs facilities for teaching and learning these languages. This in turn requires tools—textbooks, graded readings, recordings, dictionaries—which at present are available for scarcely a single Asian language other than Japanese and Chinese. In linguistics as in the natural sciences, the ultimate production of tools depends on basic research: in this case, the scientific analysis of the languages in question. Until we have reliable and reasonably exhaustive descriptions of Asian lan-

[1] Mortimer Graves, *A neglected facet of the national security problem* 1 (Washington, 1950, reprinted 1952).

guages, we cannot provide the tools that Americans must use in taking the first step toward an understanding of Asian cultures. And until that step is taken, the United States can make no real progress in meeting its obligations to the world.[2]

If it is important to build a linguistic bridge to the diverse cultures of Asia, it is no less important to maintain and improve our understanding of Western Europe. We share a common cultural tradition with the peoples of that area; it is chiefly among these peoples that we can hope to find a belief in democracy similar to our own; and it is only with their sympathetic cooperation that we can help to maintain the free world.

Though we sometimes speak of the American academic structure as centered upon Western Europe, we can no longer cheerfully assume that the student who emerges from it has acquired an effective command of any continental West European language, a working knowledge of any West European literature, any systematic information about West European political, economic, or social conditions, or indeed any appreciation of the differences between various West European attitudes and his own. The average student is naively unaware that people of other backgrounds do not think like Americans, do not react like Americans, and have a sense of values often quite different from the American. Add to this, that with the decline of Greek and Latin studies, students have lost the key to an understanding of that classical civilization from which their own has developed. American learning, like many other aspects of American life, is impoverished by its orientation in a single language and a single culture.

Everyone knows that our society is today many times more complex, many times more intimately bound up with other nations than it was two centuries ago. Behind the purchase of a spool of thread, a pair of shoes, or a newspaper lies the planned labor of hundreds of men throughout the world. The structure of government, from the town to the nation, is complicated beyond the dreams of our grandfathers. And nowhere is the intricacy of present-day economic structures more obvious than in our own country, where more than a hundred and fifty million people are involved in a daily network of communication and cooperation.

At the same time we are traditionally committed to the faith that this complex social structure must operate by democratic means —that every member of the society has a share in its control. The strains and tensions that inevitably arise from the interaction of so many people can be resolved only through communication at its most sensitive—that is, through language. Our democracy can survive only with a literate and articulate body of citizens, who can react intelligently to essential communications and can adequately express their wants, their attitudes, and their opinions. Such a command of language implies the ability not only to speak and write effectively but to read and listen critically. With ordinary correctness in the schoolbook sense it has little or nothing to do; but it requires a practical knowledge of the standard language, and of its regional variations, far beyond anything that any nation has yet attained.

Nor can we overlook the enormous changes that have recently taken place in the vehicles of communication. The radio, the movies, television, and the use of public-address systems make it possible to disseminate voices and gestures—to say nothing of the printed word—on a scale that would have seemed fantastic only a generation ago.

The development of these mass media has intensified our educational responsibilities. Properly employed, such media are instruments of great social utility: they can alleviate suffering, enlighten ignorance, and heighten the significant experience of every

[2] Paraphrased from Graves, *A program for the improvement of American understanding of Asian civilizations:* Memorandum No. 2, Basic implementation for language and area studies 8-9 (Washington, 1951).

individual. Wrongly used or manipulated by the enemies of democracy, they are a menace to our social structure. But they cannot become a menace so long as their audience is critical, informed, and questioning. To make it so is the responsibility of American education. Students must be trained to search for the attitudes and presuppositions implied in the messages that come to them through these mass media: to weigh them dispassionately, to recognize every semantically slanted term, to test the aptness of every analogy.

The task is not easy. It will not be accomplished by new courses in movie appreciation and radio listening; certainly it will not be furthered by relaxing our standards of attainment in the high school and the college. Nor will be a light-hearted or a despairing acceptance of popular anti-intellectualism help the teacher to discharge his responsibility to the country. We can avoid the latent danger, but only by insisting firmly and repeatedly on scientific rigor in place of easy popularization, and by emphasizing always an enlightened view of the nature and functions of language. This is a challenge that we dare not fail to meet.

Language is in every known society the communicative process par excellence. The history of civilization is the history of a steady increase in the radius of communication. If we are to help students to understand human behavior—their own as Americans and that of at least one other society—we must begin with the study of language; for it is through this system that all the other systems of culture are most adequately observed and transmitted. To clarify the function of language in any social group is to make a start in teaching cultural relativity and hence in dispelling harmful ethnocentric attitudes. Linguistics and language learning are central in the integration of the social sciences and the humanities; and at the very core of every student's total language experience is the command of his native language.

2. *The attainment of competence in languages.* To raise the level of our nation's linguistic competence requires more than good intentions; it requires a method. We must (a) extend our understanding of linguistic principles through basic research; (b) apply the resulting concepts to particular areas; and (c) cooperate with those who can put life into such applications.

(a) THE BASIC SCIENCE. The scientific study of language has developed recently and rapidly; in the United States especially it has been carried to a high level of competence. Basic research in this field involves the descriptive analysis of language in its various aspects, and of particular languages, past and present, for their own sake and in relation to the nonlinguistic culture of the people who speak them. Much has been accomplished, but vastly more remains to be done; even the basic principles of linguistics need clarification. Only a small fraction of the languages of the world have been adequately described; the rest, still to be dealt with, include many that are on the point of extinction. To record these languages before they die, we need a significant increase in the number of trained field workers. And for this in turn we must extend the teaching of linguistics both to graduate students and to undergraduates; we must disseminate the products of research more effectively; and we must give increased opportunities for study and fruitful work to those already competent in the field.

(b) PRACTICAL APPLICATION. Learning to work with a language is not essentially different from learning to control any other intricate structure. The first essential is to know how it operates: to have access to an accurate and comprehensive description. But as we have already observed, most of the languages of the world are still unfamiliar to us, and the familiar languages of Western Europe are too often taught in terms of a grammatical apparatus designed for Greek and Latin. The traditional eight parts of speech, recognized in some but not all Latin

grammars, are a poor fit for the categories of English or French; in many languages, even such a basic Latin dichotomy as that between adjective and verb is irrelevant. And the confusion in most Latin grammars between tenses (past, present, future) and aspect (perfect, imperfect), implied in the conjugation of Latin verbs, is not helpful in making clear the difference in English between *he went* and *he has gone*.

To teach a foreign language effectively it is necessary to compare, point by point, the structure of the language to be learned and that of the learner's native tongue. Only in this way is it possible to determine what is difficult and what is easy, and so to devise an efficient order of presentation. A teacher need spend no time training Germans to pronounce French *u*, whereas English-speaking students need careful drilling—because, obviously, the sound occurs in both French and German but not in English. The two-gender system of Spanish nouns is fairly easy for a Frenchman, who has a similar system in his own language; but the speaker of English finds it an irrational nuisance.

Successful instruction in a foreign language requires textbooks, graded reading materials, and students' dictionaries, each constructed with the linguistic orientation of the American learner in mind. It requires the teacher, or at least the writer of the textbooks, to restate the results of the structural analysis of English and the foreign language in terms that will be comprehensible to every student. If the student is to extend his command of any language, including his own, and especially if he is to integrate his knowledge of the language with what he learns about the society that speaks it, the teaching materials must be assembled with tact and care, and presented in a manner at once ingenious and urbane, analytical and esthetically sensitive. The materials used in the teaching of languages not only will have to be re-created almost completely within the next twenty-five years, but will have to be designed on patterns quite different from those to which we have grown accustomed.

(c) IMPLEMENTATION. The last half-century has seen a steady decline in the prestige of languages as a school subject, in the importance of their position in the curriculum, and in the skill of students who have been subjected to language instruction. Among the many reasons for this, the most important is that languages have not been well taught. Students come out of classes in the foreign languages unable to read, to converse, or to compose. And even the student of English, though he may master a special dialect in which to write his themes, forgets or discards it as soon as he leaves the classroom. Languages thus blunderlingly presented have naturally failed to provide a key to the understanding of our own or any other culture.

As a result, the study of language is now viewed with hostility by the various professions, the public at large, and the administrators who have in their charge the construction and operation of school curricula. The task of reestablishing confidence in language study is difficult and complex, but there is one simple way to begin it: to demonstrate how languages can be effectively taught at various levels of education and how they can serve as keys to our own and other civilizations. If we succeed in showing this, the battle will be more than half won; but we cannot show it without the basic research and the techniques of application already mentioned.

3. *Language study and the ACLS.* For many years the American Council of Learned Societies has recognized an increase in the range and effectiveness of language instruction as a primary educational need. Shortly after the United States entered the war, the sudden demands for competence in many languages hitherto scarcely heard of led the Council to establish the Intensive Language Program. The committee in charge was at first concerned to establish intensive courses in colleges and universities throughout the

country, but almost immediately began to develop teaching materials for familiar languages as well as for those less commonly taught. At the end of the war the need for trained linguists grew less pressing, and funds for the development of personnel were correspondingly reduced. Nevertheless, the ACLS COMMITTEE ON THE LANGUAGE PROGRAM has continued to further both basic research in linguistics and the application of its results to the teaching of languages. As a consequence of recently renewed steps toward preparedness in America, and of the development of language-teaching activities in American cultural centers abroad, the COMMITTEE has again enlarged the scope of its operations.

In the light of our situation as described at the beginning of this report, the COMMITTEE feels that an explicit formulation of its aims and activities may be of general interest. Such a formulation is here attempted.

FUNCTIONS OF THE ACLS COMMITTEE ON THE LANGUAGE PROGRAM

1. To encourage research in all aspects of linguistic science.

2. To provide aids to the publication of sound linguistic research.

3. To develop and encourage instruction in linguistics for both graduate students and undergraduates.

4. To develop opportunities for integrating linguistics with the study of all other fields of human behavior.

5. To apply linguistics to the teaching of foreign languages at all levels of instruction.

6. To apply linguistics to the teaching of the native language from literacy to literature, and to the teaching of all other relevant phases of culture.

7. To develop training programs to acquaint teachers with the principles and possibilities of linguistics.

8. To develop in the public an awareness of current activities among linguistic scientists.

9. To consider and present opportunities for the employment of personnel trained in linguistics.

10. To bring to the attention of administrators the importance of linguistics for present-day education.

A SURVEY OF VERB FORMS IN THE EASTERN UNITED STATES. By E. Bagby Atwood. Studies in American English 2. Ann Arbor, University of Michigan Press, 1953. Pp. viii + 53, 31 figs. Price $2.50.

Atwood's Survey of Verb Forms in the Eastern United States—the second full-length survey based on the collections of the Linguistic Atlas—is an important contribution to the study of present-day American English. Like its predecessor, Kurath's Word Geography of the Eastern United States, it substitutes for prejudice a scientific judgment based on observation of the living language, and should help in the reestablishment of the descriptive rather than the prescriptive approach as the determining principle where one is dealing with the status of competing linguistic forms.

The particular importance of Atwood's study lies in the fact that this is the first large-scale study of English grammatical forms derived from comparable data obtained by systematic sampling of the spoken language of locally and socially identified informants over a wide geographical area.[1] As

[1] C. C. Fries, American English Grammar (New York, 1940), also judges the status of grammatical forms according to the social status of the informants who actually use them. Fries' study differs from Atwood's, however, in three important ways: (1) it is based on letters written to a government bureau, so that the investigator is limited to the grammatical forms that the writers happened to use; (2) the informants are classified only by social status and not geographically, so that one cannot draw any conclusions about regional usage; (3) for various reasons—either an educationally imposed taboo on writing some forms that freely occur in speech, or the formality of the relationship between a petitioner and a government office—some very common linguistic forms rarely or never appear in these letters, even those written by speakers of what

such, it is probably an even more significant contribution to the study of present-day English than either Kurath's Word Geography or Kurath's and my forthcoming study of American pronunciation. The average speaker, or teacher, is far readier to grant regional variations in cultivated usage for vocabulary and pronunciation than he is for grammer. Travel, the radio, and previous studies have made us all aware that pronunciation and vocabulary vary from region to region, that educated New Yorkers, Philadelphians, and Charlestonians of the same social level may use different words in the same biosocial context or pronounce the same words differently. But we are less willing to concede the existence in grammar of the same variety of equally acceptable regional standards. However much we differ in actual practice, in our attitude toward language most Americans at least pay lip service to the ideal of one uniform standard of grammar, from which all deviations are wrong. Yet the history of English—or of any other language, for that matter—reveals that there have always been regional differences in standard grammatical usage, and that by dialect borrowing grammatical forms (like words or pronunciations) have spread from one region to another, even into the dialect of the cultural focus of the area in which the language is spoken. One of the most striking examples in English is the personal pronoun of the third person plural: *they, their, them*. By the thirteenth century all these case-forms were well established in Northern English, but still unknown in the London area. Toward the end of the fourteenth century, Chaucer used the nominative *they* regularly, the genitive *their* and the dative-accusative *them* very infrequently. By 1500 *they, their, them* were all established in standard London English. Atwood's study happily reminds us that competition between grammatical forms still exists in standard American English, with some forms spreading and others disappearing.

The method Atwood employs is a simple one, but one requiring intelligent judgment and painstaking examination of the evidence. His first step is to list all items in the Atlas questionnaires that might reveal differences in verb forms,[2] grouping them in the following categories: (1) Tense Forms; (2) Personal Forms; (3) Number and Concord; (4) Negative Forms; (5) Infinitive and Present Participle; (6) Phrases (sometimes several items in the questionnaires may deal with the tense forms of a single verb, or with a particular negative or personal form). The second step is to examine all of the Atlas field records and record on separate charts or tables the data for each of these items. The third step is to determine the distribution of competing forms, both regionally and socially. Where there seems to be significant regional patterns in the distribution of particular forms, Atwood has provided maps, 28 in all (Figs. 2–29). Fig. 1 indicates the geographical scope of the survey; Figs. 30–31 show two bundles of isoglosses indicating the significance of verb forms for setting off dialect areas—the South from the Midland, the South and South Midland from the North Midland. Atwood's statements are consistently clear and easy to follow.

Before making his regional and social interpretations, Atwood wisely observes certain precautions in evaluating the data he

Fries calls Vulgar English. The most notable example of this kind is *ain't* which does not appear at all.

Joseph Wright's English Dialect Grammar (Oxford, 1905) assumes a rather unified Standard English; furthermore, it is not based on strictly comparable materials like those of the American Atlas.

[2] The New England questionnaire is found in Kurath *et al.*, Handbook of the Linguistic Geography of New England (Providence, 1939), 147–58. For a comparison of all questionnaires used in the Atlas project through 1951, see Raven I. McDavid Jr. and Virginia G. McDavid, A Compilation of the Work Sheets of the Linguistic Atlas of the United States and Canada and Associated Projects, Ann Arbor, 1951.

intends to interpret. He recognizes that no two field workers operate in exactly the same fashion, regardless of their skill or training, and that such personal differences may bulk large in transitional areas covered by two fieldworkers—as Vermont by Lowman and Block, the South Carolina upcountry and upstate New York by Lowman and me. The field workers may prefer certain types of informants, may manipulate the questionnaire differently, may stick closely to direct responses or freely record incidental forms from the informant's unguarded conversation. It is true that these personal biases often correct one another; nevertheless, it is important that the interpreter of the data should recognize such problems and state them frankly, so that the reader will not be misled.[3]

Besides calling attention to differences in the fieldworkers' practices, Atwood is properly conservative in accepting the forms which the fieldworkers have recorded. For this study he counts only DIRECT RESPONSES (forms given in response to the questionnaire) and CONVERSATIONAL RESPONSES (forms picked up on the fly, from the informant's unguarded remarks); he has disregarded SUGGESTED RESPONSES (forms prompted by the fieldworker) and REPORTED RESPONSES (forms which the informant says he has heard from others, but doesn't admit using himself). Atwood's comment on this practice is well taken:

> As a result of this procedure, I believe it legitimate to conclude that the non-standard verb forms are at least as frequent in popular speech as my tabulations show them to be. In some areas, particularly, they are probably more frequent, since, no matter how skillful a fieldworker may be, there are many informants who hesitate to use a form that is perfectly natural to them because they feel that it might be disapproved as "incorrect." (3)[4]

With such a conservative approach to data recorded by trained field workers from definitely localized and socially identified informants, it is to be expected that Atwood's conclusions would be sober rather than spectacular, but all the more convincing for their sobriety. They deserve careful scrutiny from the dialect geographer, the social historian, and the much-abused teacher of high school or college English. Among the most important conclusions are the following.

1. The evidence supports the scheme of dialect areas which Kurath's Word Geography set up on the basis of vocabulary. It shows convincingly that, despite Mencken's eloquence,[5] there is no such thing as a uniform American Vulgate, spoken and written by the uneducated in all regions. Instead, there are verb forms characteristic of the North (New England, the Hudson Valley, and their derivative settlements), the Midland (Pennsylvania and its derivative settlements, including the Southern uplands), and the South (the old areas of plantation culture). Within these large regional divisions, one finds verb forms characteristic of well-defined smaller areas, both focal areas (the Hudson Valley, the Pennsylvania German area, eastern Virginia, and the South Caro-

[3] These problems are likely to be most numerous in areas investigated by several fieldworkers over a period of years, and more critical for a study of grammatical forms than for either pronunciation or vocabulary.

[4] Even direct and conversational forms may present somewhat different pictures. Some of my informants in the South—chiefly the moderately educated, but occasionally cultured informants as well—would use *ain't*, multiple negatives, and non-standard verb forms freely in conversation but never offer them in response to direct questioning; in fact, they would be indignant at my even suggesting that they might use forms which they associated with the speech of Negroes and poor whites. After several such experiences, I adopted the practice of recording grammatical forms from free conversation wherever possible, and reduced direct probing for them to a minimum.

[5] The American Language, fourth edition (New York, 1936), 416–73; Supplement Two (New York, 1948) 332–94.

lina low-country) and relic areas (northeastern New England, the Delmarva peninsula, eastern North Carolina, and the southern mountains). Many of these regional and local forms are confined to old-fashioned speech and are lacking in the metropolitan centers; but some are well established in cultured speech and are even spreading to other areas. Typical regional distributions are shown by the following forms:

The North: *see* (pret.).

The North without the Hudson Valley: /wʌnt/ *won't.*

The Hudson Valley: /wunt/ *won't* (also South Carolina coast).

Northeastern New England: /gwain/ *going* (also South).

The Midland: *boilt* (past participle).

The South Midland: *dogbit* 'bitten by a dog'.

The Pennsylvania German area: *got awake* 'woke up'.

Western North Carolina: /ækst/ 'asked'.

The South: *heern* 'heard' (also northeastern New England).

Eastern Virginia: *clome* 'climbed'.

The South Carolina low-country: *dove* 'dived' (also North).

Delmarva: *wurdn't* /wɜdnt/ 'wasn't'.

Eastern North Carolina: *hadn't ought* (also North).

2. The evidence on the social status of verb forms should be very helpful to the teacher of English and the writer of textbooks. As Atwood's book gains circulation and is supplemented by other works based on the grammatical evidence from the Atlas,[6] one can organize the preparation of teaching materials and one's classroom practices around the actual facts of cultivated usage rather than around what someone has said cultivated usage ought to be. At such a time, teachers of English will be able to devote their attention to the effective use of the standard English which nearly every college freshman has already mastered; they can eschew the time-honored drillwork in the detection and correction of 'grammatical errors'. Many of these proscribed forms are not 'errors' at all, but standard English; others, though non-standard, are confined to relatively small areas of the English-speaking world. Conversely, many so-called 'correct' forms are actually used by a minority of cultivated speakers.

To illustrate: most handbooks of composition denounce *hadn't ought, laid* as the preterite of *lie*, and *dove* /dov/ as the preterite of *dive*, in terms that suggest that these three forms are equally characteristic of uneducated speech in all regions. Atwood shows that, in reality, these three forms have three very different patterns of distribution. *Hadn't ought* (32–3, Fig. 26) is essentially a regional form; except for a small area in northeastern North Carolina, it occurs only in the North; in New England it is used by a third of the cultured informants. *Lay*, the so-called 'standard' preterite of *lie*, is universal in cultured usage only in southwestern New England; it is predominant on Chesapeake Bay and in Eastern North Carolina—parts of the South where one expects to find old-fashioned forms still in use; in general, a minority of cultured speakers use *lay* as the preterite, while a majority use *laid* (18). *Dove* is predominant throughout all the North, plus all of New Jersey; it occurs alongside *dived* in Eastern Pennsylvania, the Pittsburgh area, and the plantation area of the South Carolina-Georgia coast; in communities of divided usage, *dove* is usually favored by younger, urban, and educated informants (9, Fig. 6). Thus *hadn't ought* is a regional form which constitutes no problem for most speakers of American English; *laid* is one of two competing standard forms in a complex interrelationship of linguistic and social forces; *dove* is, in general, actually

[6] The dissertation of Virginia G. McDavid (Minnesota, in progress) will examine all the grammatical materials from the Atlantic Seaboard states, and include the evidence from the North-Central States and the Upper Midwest.

a prestige form, spreading because it is indicative of a superior social status.

3. Finally, this survey should remind scholars again of the contributions which linguistic geography can make toward an understanding of the relationships between linguistic forces and other social and cultural forces. As a summary, it will be useful in interpreting the data now being gathered in the North-Central States, the Upper Midwest, the Rocky Mountains, and the Pacific Coast. It should whet the appetite of scholars to find out what has happened to the English language in what is largely unknown territory—the Gulf States, the lower Mississippi Valley, Texas and the Southern Plains, and Canada. It should direct the attention of scholars and teachers—and one hopes, of foundations as well—to the importance of publishing the Middle and South Atlantic materials as soon as possible, Interpretive studies, like this and Kurath's Word Geography, are invaluable; but they are no substitute for an edited Linguistic Atlas of the Middle and South Atlantic States.

In Atwood's study I find a few omissions, either of verb forms or of additional contexts in which some of his cited forms might be found. I suspect most of these were omitted either because field workers were inconsistent in their practice or because the data presented no clear picture. Nevertheless, most teachers will regret that he did not consider the data on *shall* and *will*—even though this data is available for New England alone. The distribution of *hadn't ought* is very interesting; the interesting, and somewhat different, distribution of *had ought* does not appear. I miss discussion of the perfective *done* (as in *I've done worked all day*), a construction which I use myself and which I recorded frequently in South Carolina. The distribution of *lay out* and *laid out* 'played hookey' (see Kurath, Word Geography, 79, Fig. 158) might illuminate the status of *lay* and *laid* in the South. An exhaustive study of the Atlas questionnaires might disclose a few other omissions, a total trivial in comparison with Atwood's exhaustive treatment of 88 entries representing over a hundred items from the questionnaires.

I also find a few minuscule omissions from the maps. The area of the Atlas Survey omits the three Ontario communities (Welland, Kingston, Brockville) investigated as part of the New York Survey (data from Welland is included on Figs. 9 and 15), five or six communities in upstate New York, one in Ohio (Lawrence County), and a couple in South Carolina. But here, too, the errors are so slight that only exhaustive familiarity with the survey can disclose them. They do not affect the presentation of evidence, either in the text or on the maps.[7]

For several years I have waited for the publication of Atwood's study; now that I have it in my hands, I am not disappointed. I have already made frequent use of it in the few months since it appeared; in the future, I shall require all my advanced students to examine it. It is the kind of study that needs to be multiplied, and that surely will be multiplied when funds are obtained to publish the Atlas materials from the Middle Atlantic and South Atlantic States and put the data in the hands of a wider community of scholars.

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Language of the Sierra Miwok. By L. S. Freeland (IUPAL-Memoir 6, IJAL, 199 pp., Bloomington, Indiana University, 1951.).

0. L. S. Freeland began her study of the two Miwok languages of central California with extensive field work in 1921, followed by intermittent field trips, then intensive work again in 1931–32. Judging from the date of the introduction to the monograph under review, the study was completed for publication in 1936. A sketch of the Coast

[7] Four of the maps omit some of the evidence from southwest Virginia and Western North Carolina. Atwood indicates the omissions in a note immediately preceding the maps.

Range language appeared in 1947,[1] and now we have a full-length description of the Sierra language, principally the central dialect.

This work on Miwok preceded the intensive developments in methodology of recent years, and it would be specious to dwell on methodological details. This review will characterize the organization and content of the monograph, discuss certain salient features of the language it reveals, then consider its use for other studies.

1.1. The major divisions of the description are Phonology, Morphology, and Texts with Analysis. The Phonology is a brief prelude to the Morphology: consonant and vowel phonemes are each shown in a chart; phonemic length occurs with both. Varied comments on phonetic quality, allophonic range, and distribution are given, plus a table of the principal dialect differences. (The term "variphone", used in this table, seems to denote a tendency toward interchange of two distinct phonemes, judging from page 2.)

Under Morphology, grammatical processes and outstanding grammatical features are described, then that part of morphology which marks syntactical relations is analyzed. The bulk of the section is devoted to verb morphology; it concludes with an analysis of derivation in all word-classes. Three dialects are represented in the 25 pages of Texts and Analysis; Texts V and VI were taken from phonograph records, testimony to Freeland's mastery of the language.

The monograph is discursive in style; frequently a topic is presented first in precis, then in detail. Miwok sentences and other examples are liberally given; morphophonemic data occurs throughout the Morphology, apportioned among each of the subdivisions. For the most part, remarks on dialect differences and historical implications are assigned to footnotes. The occasional discussion of semantic usage is of interest, especially the section on the meaning of the verb classes.

1.2. Few forms in either the description or the texts are imitations of models from other languages, but both noun and verb are hospitable classes. There is indeed a verbal suffix (p. 123) used especially with verb-stems of Spanish provenience. Notes to the texts show English as a model for nouns, particularly place names, which are given Miwok case-endings. There is a marked difference between an older and a younger generation, the older using extensive phonetic changes in words based on English models; this difference has been reported from a number of American Indian languages of the West in recent years, including Kutenai and Karok.

A major dialectal difference is in the distinction between pronominal object and subject in the verb. In the most frequently used of the three series of pronominal suffixes to the verb, neither 3rd person object or subject is overtly marked; and for the other persons, the same form may mark both subject and object. Freeland believes most difficulties of comprehension between dialects are due to different methods of maintaining the subject-object distinction in such cases. She conducted a brief dialect-distance test, playing a recording of the central dialect to a man who spoke only the northern. He translated it with confidence, but with general misunderstanding, because he took the objective pronominal suffixes for subjective (see p. 42, n. 50).

1.3. Freeland is concerned to clarify and document the major structural patterns of Miwok, rather than to keep strict accounting of individual forms. The chief features revealed include complete absence of prefixation, compounding, or grammatically significant word order; suffixes diagnostic for, respectively, most noun and verb bases, plus a set of bases occurring with both sets of diagnostic suffixes; suffixes which nominalize verb forms, and conversely, including reverbalization of nominalized verb stems; nouns marked for tense and mode; an eight-

[1] L. S. Freeland, Western Miwok Texts with Linguistic Sketch, IJAL 13.31–46 (1947).

case system for nouns; internal change as a major morphological process; and vowel harmony in both suffixes and stems.

There are three word-classes, those of Noun, Verb and Adverb (the latter equivalent to Particle); but the occurrence of stems in relation to these is intricate and mutable. The interrelationships of Noun and Verb are even more intimate than the above list of features suggests. It is sometimes sufficient, in order to bring a stem into the desired word-class, to give it the requisite order of phonemes, not changing its phonemic inventory; thus a primary verb stem of shape CVCVC- may function nominally when metathesized into the shape CVCCV-. This brings out one of Miwok's most striking features, the great role of canonical patterns for the first two syllables of the word. (These usually but not always constitute a stem.) Freeland's treatment of these is incomplete, for she does not indicate that stress is nonphonemic, being entirely predictable in terms of the rules for syllabic length. She does bring out the essential nature of the patterns with clarity, and to show their nature, we give here a condensation of her account of the stem forms of simple verbs. Column 1 represents the four (exhaustive) types of primary stem (associated with present time); column 2 the second stem (associated with future and past time); column 3 the third stem, (associated with habitual action); and column 4 the fourth stem, (associated with nominalized functions).

	1	2	3	4
I	CVCV:C	CVCVC:	CVC:VC	CVCCV
II	CVCCV	CVCVC:	CVC:VC	CVCCV
III	CVC:V	CVCV?:	CVC:V?	CVC?V
IV	CV:C	CVC:	CVC:i?	CVC?ĭ

1.4. Misprints are rare and self-evident, excepting perhaps two. On page 63, the reference to particles should read, not 60.I.6., but 60.I.b.; on page 38, n. 47 refers to the superscript 47 on p. 40, and the superscript 47 on p. 38 has no corresponding note.

2. The frequent historical and comparative notes are entirely within the frame of the various Miwok dialects. The author judges (p. 146) that her material is not complete enough for the reconstruction of Proto-Miwok, although conclusive at certain points, such as the existence in Proto-Miwok of triconsonantal noun stems. The Penutian hypothesis is not mentioned. For historical and comparative work, it would have been helpful if some of the material in notes had been systematically developed as internal reconstruction; and the absence of a lexicon (an easy matter in a language like Miwok with initial stems of a few basic patterns) is a handicap. Perhaps one is forthcoming.

Yet Freeland's monograph is of great help for broader comparative work, and this in turn may resolve some of the difficulties not settled within her Miwok material alone. Since the structure of Miwok is quite fully exhibited, there is opportunity for comprehensive comparative study, going beyond simple proof of genetic relationship by phonological correspondence. A preliminary investigation of the structures of California Penutian has indeed been recently made by G. Francescato,[2] for Miwok, Maidu, and Yokuts. With new research into California languages actively underway, and Morris Swadesh investigating the entire Penutian hypothesis, we may expect a thorough testing of this, one of Sapir's more intuitive guesses of genetic relationship. Every such full description as Freeland's Sierra Miwok is an invaluable aid.

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LINGUISTIC BIBLIOGRAPHY FOR THE YEAR 1950 AND SUPPLEMENT FOR PREVIOUS YEARS. Utrecht-Anvers: Permanent Inter-

[2] G. Francescato, A Structural Comparison of the Californian Penutian, (M. A. dissertation, Indiana University, 1952).

national Committee of Linguists (with a grant from UNESCO), 1952. xxviii + 275 pp.

The editors of IJAL welcome the fifth volume of the Linguistic Bibliography, now well established as an indispensable tool for research in the field of linguistics. We remind our readers that the editors depend on them for collaboration and data; if the field of American Indian languages is inadequately represented, the fault lies in large part with us. Bibliographic materials should be sent to the Office of the Permanent International Committee of Linguists, 40 Sint Annastraat, Nimuegen, Holland.

As in previous issues, the Linguistic Bibliography is divided both topically and regionally. A list of main heads appears as follows: General Works (1–18), General Linguistics and Related Branches of Study (19–60), Interrelations between Families of Languages (61), Indo-European Languages (62–190), Asianic and Mediterranean Languages (191–196), Uralian Languages (197–202), Basque and the Ancient Languages of the Iberian Peninsula (203–204), Hamito-Semitic Languages (205–224), Negro-African Languages (225–232), Bushman and Hottentot Languages ((233), Caucasian Languages (234), Altaic Languages (234–239), Dravidian Languages (240), Burushaski (240), Languages of Eastern Asia (241–244), Languages of Indonesia, Melanesia, and Polynesia (245–248), Australian Languages (249), American Languages (250–253), Eskimo and Paleo-Siberian (254), and Index of Authors (255–275).

In this issue of the Bibliography, the editors have cited reviews for many bibliographical items, to aid the researcher in evaluating the works listed. This policy is to be continued in future issues and in greater detail. We hope too that the editors may be able, in the not too distant future, to provide us with evaluative comment of their own, if only to mark in some fashion the outstanding contributions of the year in each area. This, in the much to be regretted lack of an adequate abstracting service in linguistics, would do much, at relatively little cost in time and money, to improve the Bibliography.

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INTERNATIONAL ANTHROPOLOGICAL AND LINGUISTIC REVIEW. Volume I, no. 1, 1953. Edited by Alan H. Kelso de Montigny and others. Published quarterly, Miami, Florida, by Alan H. Kelso de Montigny.

The editor and publisher of the International Anthropological and Linguistic Review has written three of the seven articles appearing in the first number. To the anthropologist and linguist these articles, entitled respectively Cromanide Man in Modern Times (1–14), Legends or Facts? Yes, there were Giants and Dwarfs! (68–70), and Some New Light on the Origin of the Basque Language and People, throw considerable doubt on Dr. Kelso's competence in either field. Cromanide man, a 'giant, and the most intelligent human type ever to appear on this globe', is said to have his origin in the Atlantic Ocean, that is, possibly 'Atlantis', from which place he spread westward and eastward (2).

In the same vein, tales of giants and dwarfs are said to have their origins in fact; the fact in this instance being the invasion and conquest of Europe by Cro-Magnon man, who 'was usually seven feet tall' and who 'scared to death' the original inhabitants who ranged in stature from four feet to five feet, four inches (68, 69). Basque, it turns out, is a combination of late Paleolithic Cromanide speech (we are not told how this has been recovered from the nonliterate Paleolithic), 'South-West-European of 4500 B.C.', Caucasian of 3000 B.C., Phoenician of 1000 B.C., Celtic of 700 B.C., Greek of 600 B.C., Latin of 300 B.C., Frisian of 100 B.C., plus finally Church Latin 'and of elements absorbed in Christian times from

Sapani Spanish, French, and other modern languages' (96).

The next two articles are written by Professor Antonio Tovar (Salamanca, Spain) and Professor Nils Holmer (Lund, Sweden), both of whom are listed as co-editors of the journal. Tovar, in Basque and its Relationship to Caucasian and North Eurasian (81–86), gives us a new insight into comparative linguistics, one which leaves 'behind the old methods' in which only a 'near-sighted comparison was needed in order to be on a sure foot' (81). According to Tovar's presumably more far-sighted methods, the relationship of Basque to Caucasian and to Finno-Ugric can scarcely be doubted. Unfortunately space limitations do not permit him to document this important and, in his words, 'surprising' conclusion.

Holmer feels that 'one of the most important factors to be taken into consideration for a more realistic utilization of comparative linguistics would be the concentrated study of what is generally termed semantics . . .' (97). He enumerates ten general principles to goven research in comparative semantics (99–106) and concludes:

> It can probably be said without exaggeration that the evolution of language with which comparative linguistics is concerned falls chiefly within the field of semantics and not, as has hitherto generally been taken for granted, within the field of phonetics, whereby we at the same time are able to make ourselves rid of many such magically and arbitrarily construed phonetic laws as are assumed to be valid in 'special cases' only. It may even appear that it is the semantic, and not the phonetic, changes that really constitute the evolution of language. (106)

Exceptional in this melange of curiosa are two more articles: Studies of Racial Crossing, II: A New Theory of Skin Color Inheritance, by R. Ruggles Gates (Harvard) and A West Norse-Frisian-Kentish Parallel, by William H. Bennett (Notre Dame). Both of these appear to be sound and competently written, and surely deserving of a better fate than publication in a journal of this type.

International Anthropological and Linguistic Review is published 'for scientists and for the cultured public in general' (cover), 'under the auspices of the Lawrence Pick Fellowship established at the University of Miami [Florida] by Mr. and Mrs. Albert Pick' (inside cover). Scholarly journals are few in both anthropology and linguistics, and funds for their support difficult to find. But the need is not so desperate that we can, with a clear conscience, recommend the International Anthropological and Linguistic Review to our readers.

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